IN PURSUIT OF DECISIVE ACTION:
AIR POWER'S IMPACT ON THE GUADALCANAL CAMPAIGN

BY

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A THESIS PRESENTED TO THE FACULTY OF
THE SCHOOL OF ADVANCED AIR AND SPACE STUDIES
FOR COMPLETION OF GRADUATION REQUIREMENTS

SCHOOL OF ADVANCED AIR AND SPACE STUDIES
AIR UNIVERSITY
MAXWELL AIR FORCE BASE, ALABAMA
JUNE 2013

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JUN 2013		**00-00-2013 to 00-00-2013**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
In Pursuit Of Decisive Action: Air Power's Impact On The Guadalcanal Campaign	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **School Of Advanced Air And Space Studies,,Air University,,Maxwell Air Force Base,,AL**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

After World War I, Giulio Douhet and William Mitchell both argued air power would be decisive in future wars. As early air power theorists, their ideas inspired generations of airmen, but due to a conceptual misunderstanding of what the term decisive entails, their message helped generate unrealistic expectations for the future. After separating the term decisive into two distinct concepts of decisiveness, meaning war-determining, and conclusiveness, meaning war-ending, this paper revisits the writings of Douhet and Mitchell to determine their intent. Both men believed air superiority was the essential condition for victory, and that an air force could be decisive if it secured and exploited the essential condition. They also believed an air force could be conclusive if it possessed sufficient force to crush the adversary???s material and moral resistance. Application of these ideas to the Guadalcanal Campaign of World War II reveals that air power is not universally decisive. The concepts of decisiveness and conclusiveness must be applied at each level of war. Furthermore, the essential condition varies, particularly in relation to the character of the conflict. However, when one looks at the operational and tactical levels of war within the Guadalcanal Campaign, air superiority was the essential condition for victory. Decisive action rested on the ability of the Cactus Air Force to secure and exploit the essential condition to a sufficient degree such that victory for the Allies logically followed.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**158**	

APPROVAL

The undersigned certify that this thesis meets master's-level standards of research, argumentation, and expression.

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ACKNOWLEDGEMENTS

First, thank you to the faculty of the School of Advanced Air and Space Studies and the members of Class XXII; you have made this year an amazing experience. Specifically, thank you to Dr. Thomas Hughes, Dr. Richard Muller, and Dr. Sebastian Lukasik; your insights and guidance over the course of this project were invaluable. Next, thank you to my family; without your efforts, I would still be writing. Finally, thank you to the men and women of the United States Air Force; you carried out the mission while my classmates and I spent the last year reading, thinking, and writing about our profession. I hope you will find our time spent away from the operational Air Force valuable over the long-term.

ABSTRACT

After World War I, Giulio Douhet and William Mitchell both argued air power would be decisive in future wars. As early air power theorists, their ideas inspired generations of airmen, but due to a conceptual misunderstanding of what the term *decisive* entails, their message helped generate unrealistic expectations for the future. After separating the term *decisive* into two distinct concepts of decisiveness, meaning war-determining, and conclusiveness, meaning war-ending, this paper revisits the writings of Douhet and Mitchell to determine their intent. Both men believed air superiority was the essential condition for victory, and that an air force could be decisive if it secured and exploited the essential condition. They also believed an air force could be conclusive if it possessed sufficient force to crush the adversary's material and moral resistance. Application of these ideas to the Guadalcanal Campaign of World War II reveals that air power is not universally decisive. The concepts of decisiveness and conclusiveness must be applied at each level of war. Furthermore, the essential condition varies, particularly in relation to the character of the conflict. However, when one looks at the operational and tactical levels of war within the Guadalcanal Campaign, air superiority was the essential condition for victory. Decisive action rested on the ability of the Cactus Air Force to secure and exploit the essential condition to a sufficient degree such that victory for the Allies logically followed.

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A Failure to Communicate

After observing the terrestrial stalemate in World War I, Italian air power theorist Giulio Douhet and United States (U.S.) Army Air Service officer William "Billy" Mitchell arrived at similar conclusions on the future role of air power: air power should be organized in an independent air force under the control of an airman; the first role of an independent air force is to achieve air superiority; and air power would be decisive in future combat.[1] Over the last century, most militaries arrived at a consensus on the first argument, establishing independent air forces with career airmen in charge, while combat experience and U.S. joint doctrine generally supports the second argument.[2] But consensus evaporates on their third argument when the term *decisive* is brought into the discussion. A century later, politicians, the joint community, and individual airmen are more confused than ever on what it means to be *decisive*.

Statement of the Research Question

Is air power decisive? Perhaps more importantly, what does it mean to be decisive? Surprisingly, joint doctrine is silent on this term, as is Air Force doctrine. Army doctrine, however, defines a *decisive operation* as one "that directly accomplishes the mission."[3] Such a definition is appropriate for a service whose mission is "To Fight and Win our Nation's Wars," but is finality what Douhet and Mitchell really had in mind or were they implying something

[1] Mitchell typically used the phrase "control of the air," while Douhet used the phrase "command of the air." When not specifically referring to one of their ideas in isolation, or when discussing both of their ideas in total, this paper uses the phrase "air superiority."

[2] Joint Publication (JP) 3-0 states, the joint force commander (JFC) "normally seeks to gain and maintain air superiority as quickly as possible to allow friendly forces to operate without prohibitive influence from adversary air threats." JP 3-0, *Joint Operations,* 11 August 2011, III-24.

[3] Army Doctrine Reference Publication (ADRP) 1-02, Change 2, *Operational Terms and Military Symbols*, 28 November 2012, 1-12.

different?[4] Could they have intended multiple meanings, and, if so, could we develop a better methodology to describe and assess air power's impact? Furthermore, by helping describe the decisiveness of air power, might this provide a better methodology for discussing decisive action within the military *writ large*?

This research paper intends to answer these questions by describing, defining, and then analyzing what it means to be *decisive*. Using the Guadalcanal Campaign in World War II as a case study, it will then address the rhetoric and the reality surrounding the decisiveness of air power as characterized by Douhet and Mitchell. The objective is not to prove the universal decisiveness of air power; rather, this paper's more modest objective is to demystify a term that is as elusive today as it was 100 years ago. In doing so, this paper will show that even great military theorists such as Carl von Clausewitz and Antoine Henri de Jomini struggled with what it meant to be decisive. Ultimately, this paper seeks to provide a way to aid others in advancing the argument, either for or against, the decisiveness of air power.

Background and Significance of the Problem

On the eve of Desert Storm, Saddam Hussein commented "The United States relies on the Air Force and the Air Force has never been the decisive factor in the history of wars."[5] Before the war, the Iraqi dictator possessed the fourth-largest military in the world and fifth-largest air force. When coalition ground forces entered Kuwait 38 days later, Iraq had minimal command and control, its integrated air defense system was largely inoperative, its air force was in ruin, and most of its fielded forces in Kuwait were below 50% combat effective.[6] After a four-day ground campaign, President George H. W. Bush felt the national objectives were met

[4] U.S. Army, "WWW.ARMY.MIL: The Official Homepage of the United States Army," http://www.army.mil/info/organization/ (accessed 21 January 2013).
[5] Quoted in Mark Clodfelter, "Of Demons, Storms, and Thunder: A Preliminary Look at Vietnam's Impact on the Persian Gulf Campaign," *Airpower Journal* (Winter 1991): paragraph 37.
[6] John Andreas Olsen, *A History of Air Warfare* (Washington, DC: Potomac Books, Inc., 2010), 195-6.

and directed a cease fire. Several months later, Secretary of Defense Dick Cheney argued the "air campaign was decisive."[7] Not everyone agreed.

In *The Generals' War*, Michael Gordon and Bernard Trainor argued the Air Force viewed the Gulf War as a model for future conflicts, but the Army and Marine Corps were determined "never to go to war that way again."[8] Subsequently, a new narrative developed to downplay air power's performance. One Army general argued the "air campaign against Iraqi forces gained not a single one of the U.S. or [United Nations] objectives in the Persian Gulf War. Four days of land combat—aided immeasurably by the air campaign—achieved every goal and victory."[9] The Association of the U.S. Army also questioned Cheney's assessment: "As the leading element of the war coalition, the United States Army decisively defeated the fourth-largest field army in the world.…It was the land force that provided the essential muscle to lead America's coalition partners in the liberation of Kuwait, the decisive defeat of the Iraqi Army, and the restoration of stability in the Persian Gulf."[10] From their perspective, air power did not achieve President Bush's objectives. Cheney was wrong.

Airmen were again touting the decisiveness of air power following Deliberate Force and Allied Force, operations that relegated land power to a background threat. Operation Enduring Freedom subsequently emphasized the capabilities of special operations personnel and light infantry supported by air power, failing yet again to showcase the decisive capabilities of the Army. Perhaps unsurprisingly, Army General Tommy Franks insisted the ground invasion for Operation Iraqi Freedom commence prior to any major air campaign when it came time for a

[7] Secretary of Defense Richard Cheney, "Meet The Press," April 14, 1991.
[8] Michael R. Gordon and Bernard E. Trainor, *The Generals' War: The Inside Story of the Conflict in the Gulf* (Boston, MA: Little, Brown and Company, 1995), 331.
[9] General Frederick Kroesen, Commander in Chief of U.S. Army Europe. Quoted in John T. Correll, "The Strategy of Desert Storm," *Air Force Magazine* 89, no. 1 (January 2006): section 9: *A New Balance*, paragraph 6.
[10] Quoted in Correll, "The Strategy of Desert Storm," section 9: *A New Balance*, paragraph 7.

second war with Iraq. His choice to forego a Desert Storm-style air campaign, regardless of the reason, effectively preempted any potential claims of air power playing the decisive role.

Land power regained its preeminence during a decade of counter-insurgency, but with Operation Iraqi Freedom complete, and with the continued reduction of forces in Afghanistan, the debate over decisiveness is likely to begin anew as concepts such as AirSea Battle propagate through Washington. To find proof of the impending storm one need only review Air Force commentary on Operation Odyssey Dawn, the initial air campaign over Libya. The air component commander, Major General Margaret Woodward, commented, "Air power decisively stopped the Libyan regime from massacring tens of thousands of Libyan citizens in Benghazi… Odyssey Dawn, once again, proved that air power offers our leaders sovereign options that they simply can't get anywhere else."[11]

As any planner will attest, words have meaning, and perhaps no word is more critical in modern warfare than the word *decisive*. Dramatic reductions in military funding will only exacerbate inter-service tensions, and the service with the greatest claim on decisive action will likely gain the upper hand in budgetary battles. As a result, airmen must enter this new era of service equality and dwindling budgets with a better understanding of what the term *decisive* means and then be able to articulate in clear terms what air power brings to the fight.

Preview of the Argument

Air power is not universally decisive in warfare, nor is achieving air superiority. This is true for two primary reasons: one semantic and one substantive. First, there is no common definition for *decisiveness*. Careful analysis of Jomini and Clausewitz reveals that the problem of precisely defining *decisiveness* goes back well beyond the days of Douhet and Mitchell.

[11] Maj Gen Margaret Woodward, "Defending America's Vital National Interests in Africa" (address, Air Force Association 2011 Air and Space Conference and Technology Exposition, National Harbor, MD, 21 September 2011).

Despite thousands of years of ground warfare, theorists in the 1800s were still propagating confusion over what it meant to be *decisive* by using this one term to convey two very different concepts. On one hand, *decisive* implied finality, as in an end to the conflict. At the same time, *decisive* also implied the key event or turning point in a battle in a conflict.

Douhet and Mitchell then added to the confusion by arguing the universal decisiveness of air power. Unfortunately, neither man clarified what that term meant. This is especially problematic because, like previous theorists, Douhet and Mitchell used the term *decisive* to imply both war-determining and war-ending at various times.

To eliminate confusion, joint doctrine should clearly define the term *decisive* and add a complementary term to the discussion, *conclusive.* The term *conclusive* should convey the concept of war-ending. The term *decisive* should be reserved for the concept of a turning point in the conflict. Together, these two terms are better able to describe the two distinct concepts that are often conflated into the single term *decisive.*

Within the context of decisive and conclusive action, both Douhet and Mitchell believed achieving and then exploiting air superiority would be universally decisive, but neither man believed air power would be universally conclusive. Conclusiveness depended on the character of the independent air force and the circumstances of the conflict. With air superiority achieved, an independent air force could then make a choice between emphasizing auxiliary aviation or strategic attack. In the first instance, the army would be conclusive. In the second, the independent air force could be conclusive. Naturally, both men advocated for the second option.

If we focus on the concept of decisiveness, this leads to a second reason why air power is not universally decisive. Douhet believed achieving command of the air was the "essential condition" that assured victory, assuming the gaining side could exploit it sufficiently; but

command of the air, or air superiority, is one of several critical conditions that vary based on the character of the conflict and the level of war being evaluated.[12] Other potential critical conditions include information superiority, maritime superiority, space superiority, or even the preservation of an alliance. The character of each conflict will determine which critical conditions are relevant. Furthermore, at each level of war, one of those relevant critical conditions will prove to be *the* essential condition upon which decisive action rests..

Thus, the decisive event or force will be that which is best able to secure and exploit the essential condition at the respective level of war so that victory for one side and defeat for the other logically follows. In some conflicts, the exploitation might occur simultaneously with the securing of the essential condition; in other conflicts, it may not. If not, the securing of the essential condition remains indecisive because victory does not yet logically follow. In this situation, the duel continues with one side trying to exploit the essential condition while the other seeks to reestablish parity in the essential condition.

To summarize, air power is not universally decisive because at present there is no agreed upon definition. Even when we separate the concept into decisive and conclusive terms, the Guadalcanal Campaign suggests that air superiority may not always be the essential condition or the focus of decisive action. However, the campaign also suggests air superiority may become the essential condition at the tactical and operational levels of war in certain types of conflict; but in other types of conflict, or at the strategic or grand-strategic levels of war, other critical conditions are often essential. Thus, the central lesson for airmen is that they must learn to speak with greater specificity so as to describe accurately what air power can and cannot do in war.

[12] Giulio Douhet, *The Command of the Air*, trans. by Dino Ferrari, ed. by Joseph Patrick Harahan and Richard H. Kohn (Tuscaloosa, AL: University of Alabama Press, 2009), 98.

Chapter 2

A Problem with Terminology

Writing in the early Twentieth Century, Douhet and Mitchell both believed air power would play a critical role in wars to come, and it should come as no surprise that both men were compelled to describe air power's potential in terms of *decisiveness*. Although the concept of decisiveness was not new to warfare, its present emphasis stems from the writings of two of the most influential military theorists of the modern era—Jomini and Clausewitz. After observing the Napoleonic wars first hand, both theorists emphasized this term in various capacities in their respective works. Unfortunately, neither man clearly defined what it meant to be decisive, often conflating two very distinct concepts of war-determining and war-ending into the same general term. One hundred years later, Douhet and Mitchell added to the confusion by claiming air power could be universally decisive without further clarification. Only by separating the concept of decisiveness into two distinct concepts can we discover what Mitchell and Douhet really believed. This effort begins with a closer examination of *Art of War* and *On War*.

Decisiveness in the Age of Napoleon

Of the two theorists, Jomini was far more explicit in his discussions of decisiveness. He began with the concept of decisive points—the importance of which he stated is both "constant and immense."[1] He then shifted to the concept of decisive battles, which he never clearly defined. Jomini further described the concept of *decisive strategic points* as ones "which are capable of exercising a marked influence either upon the result of the campaign or upon a single enterprise."[2] These decisive points can be strategic in nature, such as an adversary's capital;

[1] Antoine Henri de Jomini, *Art of War*, trans. By G.H. Mendell and W.P. Craighill. (Mineola, NY: Dover Publications, Inc., 2007), 77.
[2] Jomini, *Art of War*, 78.

geographic, such as a key piece of high terrain; accidental, which result from the position of troops; or even political, which Jomini describes are often pursued due to some "very irrational" requirement placed upon the military.[3] Of principal importance to the commander is determining successive decisive points and then orchestrating his armies to throw overwhelming force at the correct decisive point at the proper time.[4]

Jomini then shifted again to discussions with vague references to "decisive blows" and "decisive battles" without any definitions. Foreshadowing future debates on strategic bombing, Jomini wrote, "it is the *morale* of armies, as well as of nations, more than any thing else which makes victories and their results decisive."[5] In the next sentence he criticized Clausewitz for implying battles might lead to complete victory without an attempt to "turn the enemy." In perhaps his only attempt at defining the term, Jomini seemed to imply that to be *decisive* a general must turn the adversary's flank or envelop his forces. Through this turning or enveloping maneuver, the victorious general would achieve a decisive blow that would not only attrit or capture a large amount of the adversary's soldiers, but also demoralize them. In this respect, Jomini seemed to believe an adversary's forces must realize and accept defeat for a blow to be decisive. This same logic would seem to apply when he references the morale of nations as well.

Although the concepts of envelopment or turning the adversary's flank are too simplistic for the purposes of defining *decisiveness* beyond the tactical or operational levels of war, a review of *Art of War* is revealing for two reasons. First, with over one hundred uses of the term *decisive* in English translations, Jomini literally inundated his readers with the term in all capacities, contexts, and levels of war. This point is even more critical because Jomini, not

[3] Jomini, *Art of War*, 78-83.
[4] Jomini, *Art of War*, 62-74.
[5] Emphasis in original. Jomini, *Art of War*, 162-163.

Clausewitz, was the principal interpreter of Napoleon for the English speaking world.[6] Ultimately, *Art of War* forced the word *decisive* into the lexicon of the generations of soldiers he influenced; any theorists that followed were compelled to speak in the same terms.

Second, *Art of War* also addressed the concept of defeating adversary morale. Napoleon often spoke of the adversary army's morale, but it is intriguing Jomini made a casual reference to the morale of nations. By commenting on morale, Jomini implied decisive blows lead to a realization within an army, a state, or a population that they are defeated. Taking this concept one step further, it lends itself to the notion that decisive actions lead to a sense of inevitability on both sides; a concept that Clausewitz noted as well.

Whereas Jomini believed generals could achieve a decisive blow by applying decisive force at a decisive point through a turning maneuver executed at the right time, Clausewitz was less prescriptive, alluding to similar concepts applying metaphorically in a strategic sense. *On War* offered no formulaic approaches to decisiveness; rather, Clausewitz emphasized the importance of a commander exercising judgment to mass his forces at the right time and achieve a decisive victory through grand battle.[7] To the concept of inevitability, he conceded decisive battles were "very rare exceptions," and that it was not until "recently," meaning the Napoleonic wars, where decisive battles were able to decide entire campaigns.[8]

Clausewitz believed the weight of the decision brought about by a great battle varies based on four factors: the tactical pattern to which the battle is fought, the terrain, the force

[6] Although Clausewitz is more popular today, Weigley highlighted *On War* was not translated into English until 1873. By this time, Jomini was already widely read in the English speaking world, and his thoughts had become the foundation for strategy at West Point in the 1840s. Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy* (Bloomington, IN: Indiana University Press, 1973), 82-84.
[7] Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 260-262.
[8] Clausewitz, *On War*, 260.

composition, and the relative strength of the armies.[9] When these factors align and opposing sides put at risk a major portion of their forces, "both sides initiate a major decision."[10] In this case, even if the battle fails to end the conflict, the first great decisive battle sets a pattern all subsequent battles will follow.[11] The pattern Clausewitz identified lends itself to some measure of prediction, or perhaps even to a sense of inevitability as to the ultimate outcome.

Although Jomini and Clausewitz disagreed on many concepts, this common sense of inevitability is critical in developing a revised definition of *decisiveness*. This leads us to one additional Nineteenth Century military historian. In the 1850s, Sir Edward Creasy published the landmark book *Fifteen Decisive Battles of the World: From Marathon to Waterloo*. Although he offered no exact definition of what makes a battle decisive, the criteria he used to justify his selections suggest a particular line of thought. Perhaps the best summary of Creasy's criteria was written a century later by American historian O.K. Armstrong. In a spin-off of Creasy's work titled *Fifteen Decisive Battles of the United States*, Armstrong summarized Creasy's test as "whether the outcome of the battle so influenced the entire campaign or war that victory for one side and defeat for the other logically followed, and thereby the course of history for the nations and the peoples involved, and perhaps for the entire world, was determined."[12] If we remove some of Armstrong's grandiose dialogue, we arrive at a useful definition:

> Decisive: an event or force that so influences the battle, campaign, or war that victory for one side and defeat for the other logically follows

For the winner of a decisive battle or campaign, victory is no longer a question of *if* but of *how*, *when*, and *at what cost*.

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[9] Clausewitz, *On War*, 261.
[10] Clausewitz, *On War*, 260.
[11] Clausewitz, *On War*, 260.
[12] O.K. Armstrong, *Fifteen Decisive Battles of the United States* (New York: Longmans, Green and Co., 1961), v.

Conclusiveness

For the losing side, defeat becomes inevitable after a decisive action, yet often the battle, campaign, or war continues. Fog and friction are sometimes responsible for this. It is often difficult for either side to understand fully the strength or weakness of their position, even after a decisive battle. And even if they do, the losing side may not be ready to capitulate for a number of reasons. In either case, conflicts often continue until some other series of events finally bring about a conclusion, which brings us back to war-ending.

Regardless of the criteria Creasy might have used to characterize decisive action, many individuals will hear "decisive*"* and think in war-ending terms. Returning to Secretary of Defense Cheney's comments, perhaps he used the term *decisive* along the proposed lines of war-determining, implying the air campaign made victory inevitable for the coalition. Soldiers disagreed because their doctrine tells them decisiveness refers to war-ending, or the final actions that achieve the commander's objectives. If both sides can make legitimate claims as to the decisiveness of air or ground power in Desert Storm, then clearly we have a terminology problem.

Words matter, and ultimately the same term should not be used to describe two very distinct concepts. Since the proposed definition of *decisive* refers to the concept of war-determining, the joint community requires a second term to address the concept of war-ending. While one can literally find hundreds of synonyms for *final*, *conclusive* is a suitable alternative that already shows up periodically in military literature. It also clearly denotes the concept of finality; and when used as a contrast to *decisive*, the meaning of each crystallizes.[13] In summary, *decisive* equates to war-determining, while *conclusive* equates to war-ending:

[13] In the course of writing this thesis, Colin Gray published *Airpower for Strategic Effect*. In it he uses the term *decisive* frequently, but he uses the term *conclusive* a couple of times as well. Although he does not define the

Conclusive: an event or force that ends the battle, campaign, or war

To test these definitions, consider if Cheney had said, "The air campaign was decisive; the land campaign was conclusive." Regardless of whether individuals agree or disagree with Cheney's assessment, they could debate the merits of his statement without stumbling over semantics. Although this is a distinct improvement, a methodology for characterizing decisive and conclusive actions must be more than just an exercise in hind-sight. It must also have some predictive capabilities to help strategists and commanders allocate their limited resources. In this respect, Douhet's and Mitchell's theories on air power are informative.

Douhet

Few military theorists are as polarizing as Giulio Douhet. Individuals on one side see him as a visionary, a prophet, and some refer to him as the "father of air power." Individuals on the other side see him as a charlatan who spawned an entire community of air power zealots that overpromised and under-delivered in World War II. Bernard Brodie, one of his chief critics, argued World War II proved Douhet wrong "on almost every salient point he made. To assert the reverse, as is often done, is to engage in propaganda, not analysis."[14] Brodie then reluctantly conceded the "framework of strategic thought [Douhet] created is peculiarly pertinent to any general war in the nuclear age."[15] Philip Meilinger offered a similar compliment: Douhet was a man of great intellect despite his "many theoretical deficiencies."[16] Although the primary focus

terms, the context seems to align with the proposed definitions. In one chart he states, "Apply heavy and potentially decisive pressure for conclusive strategic effect in (largely) irregular conflicts" as something air power does poorly. His usage of both terms in the same sentence demonstrates the ability to use them in contrast with one another and convey the desired intent, even without defintions. Colin S. Gray, *Airpower for Strategic Effect* (Maxwell AFB, AL: Air University Press, 2012), 281 and 184.

[14] Bernard Brodie, *Strategy in the Missile Age* (Santa Monica, CA: The RAND Corporation, 1959), 101.

[15] Brodie, *Strategy in the Missile Age*, 106.

[16] Phillip S. Meilinger, *The Paths of Heaven: Evolution of Airpower Theory* (Maxwell AFB, AL: Air University Press, 1997), 34.

of this paper is not to rekindle a debate over the merits of Douhet's arguments, it is important to discuss briefly his and Mitchell's general credibility before using their principles to further frame the discussion on decisiveness and conclusiveness.

Although Douhet is most well-known for concepts such as city-busting and the battleplane, he advanced numerous other ideas in *The Command of the Air*. Both he and Mitchell advocated for centralized control of air assets under an airman, and Douhet believed achieving command of the air should be the independent air force's first responsibility. Furthermore, Douhet was one of the first to recognize the importance of parallel targeting, identifying five key target sets that closely align with John Warden's Five Rings model 65 years later.[17] Along the lines of the current American military structure, Douhet also argued for three coequal service branches commanded by a supreme authority.[18]

Even many of his ideas which drew criticism have an interesting air of truth to them now. Consider the often maligned battleplane. Specifically, Douhet believed the ideal combat airplane was one with the radius of action, speed, and protection to engage in both aerial combat and surface attack. He then advocated for varying configurations to the same airplane to make it more capable based on the desired mission. Early on, an air force would configure the aircraft for aerial combat with more defensive protection and aerial armament. With command of the air established, the construction of the battleplane should allow for the "ready adjustment…to increase the plane's radius of action or its striking power against surface targets."[19] Furthermore, the plane should be heavy so as to hold more munitions, be multi-motored and medium-speed, and potentially even be amphibious. Although many mock the battleplane concept, one could

[17] Giulio Douhet, *The Command of the Air*, trans. by Dino Ferrari, ed. by Joseph Patrick Harahan and Richard H. Kohn (Tuscaloosa, AL: University of Alabama Press, 2009), 20.
[18] Douhet, *The Command of the Air*, 70-71.
[19] Douhet, *The Command of the Air*, 119.

point to the carrier-based F-18E/F Superhornet as the closest the world has come to realizing the concept. Other multi-role aircraft like the F-15E Strike Eagle, F-16 Fighting Falcon, and Flanker variants are all designed in the same multi-role mold with the ability to change configurations based on mission.

Again, the purpose of discussing the battleplane concept is not to initiate a point-by-point discussion over the merits of Douhet but to highlight two things: 1) we must evaluate theorists by more than just the events of one war; and 2) Douhet did not just stumble back into relevance with the advent of nuclear weapons. Douhet certainly made some inaccurate predictions, as all theorists do, but he was also remarkably accurate on a number of issues. Ultimately, his thoughts are just as relevant today as they were during the interwar years.

Douhet on Decisiveness and Conclusiveness

Current volumes of *The Command of the Air* typically include Douhet's four Books, written and published over a ten year period between 1921 and 1930. Douhet published Part I of Book One, titled *The Command of the Air*, through the Italian War Ministry in 1921. Believing the time was inappropriate for a full unveiling of his thoughts, he was careful "not to oppose too strongly certain notions held in high places."[20] Six years later, he published Part II of *The Command of the Air* in which he was far more controversial. Douhet then published Books Two and Three as separate articles penned in response to the rising criticism to Part II. Finally, Douhet authored Book Four, titled "The War of 19—," describing his vision of a hypothetical conflict between France and Germany in the near future.

Through the 1920s, Douhet became less attached to the War Ministry and increasingly provocative in his advocacy of air power, as evidenced by the adversarial tone of his later writings. He considered Part I of *The Command of the Air* a "point of departure for further

[20] Douhet, *The Command of the Air*, preface to the 2nd edition, 1927.

progress."[21] As one example, in Part I Douhet conceded the existence of an auxiliary air force for supporting the needs of the army and the navy, so long as they budgeted for their auxiliary air forces and managed those aircraft.[22] In Part II, however, Douhet modified his discussion, if not necessarily his position, and argued auxiliary air forces are "*worthless, superfluous, harmful*" because they cannot "succeed in conquering the command of the air."[23]

Although Douhet believed his stronger underlying thoughts were clear to anyone who approached the topic of air power with "common sense," the shift in tone between the early books and the later books makes it difficult to decipher Douhet's true thoughts on decisiveness and conclusiveness. [24] In Part I, he generally avoided the term *decisive*, likely in an attempt to soften the impact of his writings. By the late 1920s, however, he was no longer concerned with keeping up such pretenses and repeatedly discussed air power in terms of decisiveness, often conflating the concepts of war-determining and war-ending.

Douhet believed air power was both decisive and conclusive, when implemented correctly. In Part II of Book One, he argued the independent air force is "*the best way to assure victory, regardless of any other circumstances whatever, when it has been organized in a way suitable to winning the struggle for command of the air and to exploiting the command of the air with adequate forces*."[25] Although Douhet offered multiple descriptions for command of the air, he finally settled on: "*to have the ability to fly against an enemy so as to injure him, while he has*

[21] Douhet, *The Command of the Air*, 93.
[22] Douhet, *The Command of the Air,* 72.
[23] Douhet, *The Command of the Air*, 94.
[24] Douhet, *The Command of the Air*, 94.
[25] Italics in original. Douhet, *The Command of the Air*, 98.

been deprived of the power to do likewise."[26] Douhet considered achieving this level of dominance in the air battle the "essential condition," the independent air force's first priority.[27]

After achieving command of the air, the "adequate forces" Douhet spoke of are those "capable of crushing the material and moral resistance of the enemy," or what Douhet labeled the "integral condition."[28] An independent air force able to achieve both the essential and integral conditions "decides the issue of the war without regard to any other circumstances whatever."[29] In this context, Douhet spoke to the concept of war-ending, or the proposed definition of conclusiveness; but he was also implicitly stating that air power is decisive as well. Essentially, an independent air force that achieves both conditions is decisive *and* conclusive. He was less clear about what happens if the service is only capable of achieving the essential condition.

Douhet recognized air power had to generate effects on the ground to be relevant. Like the battleplane shifting its configuration from air-to-air to air-to-ground, after achieving command of the air, all of the independent air force's actions "must necessarily be directed against the surface."[30] This represents the exploitation of the command of the air and is what actually determines the decisiveness and conclusiveness of air power. If the service is incapable of exploiting the command of the air to any degree, then air power will not be decisive or conclusive. These roles would then fall to another component, although the independent air force would still place its related army and navy in a "very advantageous situation": the adversary would be unable to exploit command of the air for its own purposes.[31]

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[26] Italics in original. Douhet, *The Command of the Air*, 97.
[27] Douhet, *The Command of the Air*, 98.
[28] Douhet, *The Command of the Air*, 98.
[29] Douhet, *The Command of the Air*, 98.
[30] Douhet, *The Command of the Air*, 105.
[31] Douhet, *The Command of the Air*, 99.

A second scenario is one in which the independent air force is capable of some degree of exploitation, but not enough to be conclusive; in other words, the service is unable or unwilling to crush the adversary's material and moral resistance. In this case, air power can still be decisive, although, at first glance, it seems as though Douhet argued it cannot. In Part II, Douhet directly addressed a situation where an independent air force subjects "the enemy's land and sea territory to aerial offensives—without, however, having enough offensive power" to achieve the integral condition as well. In this case, the independent air force "cannot decide the issue of the war."[32] His use of the phrase "decide the war" seems to imply an all-or-nothing interpretation of decisive and conclusive, but this is likely not Douhet's intent.

Faced with ambiguity on a situation where an independent air force achieves command of the air, exploits it, but fails to be conclusive, the "The War of 19—" offers critical insight that enables us to better assess Douhet's true thoughts on the subject. Published just a few days after his death in 1930, the article describes a fictitious scenario in which Germany goes to war with France and Belgium. Prior to the war, Germany invested heavily in fleets of offensive battleplanes designed to win and then exploit command of the air through strategic attack, while France and Belgium invested in defensive pursuit aircraft and auxiliary aviation. In the first day of the war, hundreds of German battleplanes fought similar numbers of pursuit aircraft; and although both sides suffered horrendous losses, the battleplanes destroyed most of the pursuit aircraft and managed to bomb over a dozen Allied cities.[33] The German battleplanes then overcome the small number of pursuit aircraft remaining on the second day to level four more Allied cities. The story ended with a German communiqué threatening to repeat the devastation

[32] Douhet, *The Command of the Air*, 98.
[33] Giulio Douhet, "The War of 19—," in *The Command of the Air,* trans. by Dino Ferrari, ed. by Joseph Patrick Harahan and Richard H. Kohn (Tuscaloosa, AL: University of Alabama Press, 2009), *384-388.*

on the third day followed by a cryptic statement that the "history of the war of 19— presents no more interest."[34] The implication is that the war subsequently ended after just two days of battle.

Although Douhet wrote this scenario like an historical account of the war and avoided offering any analysis, the development of the war provides significant insight into Douhet's logic. Germany gained command of the air during the brutal combat of the first day; the battleplanes also demonstrated an ability to exploit command of the air on the first day with successful attacks on multiple cities. Believing their remaining pursuit aircraft unable to prevent the bombings on day two, the French and Belgian people felt "they had been defeated in the air, and that they were hopelessly at the enemy's mercy."[35] Victory was inevitable for the Germans, as was defeat for the Allies. The Allied governments, however, refused to surrender. After another day of aerial destruction, Douhet implied the Allies shifted their position and conceded the war. Thus, the German battleplane fleets were decisive on day one because they secured the command of the air and demonstrated an ability to exploit it; in other words, the air battles on day one were war-determining. Those actions were not conclusive, however, because the Allies were not ready to concede. Assuming the Allies surrendered after the second day, then the destruction of four cities on day two and the threat of more destruction on day three were the conclusive events actually ending the war.

Douhet's fictitious scenario shows that many of the apparent inconsistencies in Douhet's arguments actually stem from the same terminology problem affecting Clausewitz and Jomini. When one overlays the definitions of the two proposed terms of *decisive* and *conclusive* onto Douhet's scenario and his prior writings, we can develop a simplified version of his air power theory: command of the air is the essential condition and the first priority for an independent air

[34] Douhet, "The War of 19—," 394.
[35] Douhet, "The War of 19—," 392.

force; once achieved, the independent air force should exploit command of the air to generate effects on the surface; air power is decisive when it exploits command of the air to such a degree that victory becomes inevitable; and finally, air power is conclusive when it achieves the integral condition, or the destruction of the material and moral resistance of the adversary. As revolutionary as these ideas were, another air power theorist was arriving at many of the same conclusions in the United States.

Mitchell

Air Marshal Hugh Trenchard best described William "Billy" Mitchell's approach to handling criticism and opposition when he said the American theorist "tried to convert his opponents by killing them first."[36] Despite his adversarial approach, or perhaps even because of it, Mitchell managed to become the "messiah" of American air power in a relatively short period of time.[37] His enduring thoughts and ideas are just as important and worthy of continued examination.

In 1905, little more than a year after the Wright brothers' first flight, Mitchell predicted a future dominated by aircraft and submarines.[38] Through the years, his fascination with cutting edge technology led him to make further predictions, such as the development of cruise missiles, precision guided weapons, glide bombs, jet propulsion, supersonic flight, and space travel. In *Winged Defense*, he even spoke of the great value helicopters would possess in the future, but beyond the equipment of future war, his most lasting influences were on the concept of air power and the culture of airmen.[39]

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[36] Quoted in Clodfelter, "Molding Airpower Convictions," in *The Paths of Heaven: The Evolution of Airpower Theory*, ed. by Phillip S. Meilinger (Maxwell AFB, AL: Air University Press, 1997), 80.
[37] Clodfelter, "Molding Airpower Convictions," 80.
[38] Clodfelter, "Molding Airpower Convictions," 82.
[39] William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (Tuscaloosa, AL: University of Alabama Press, 2009), 156.

Like his contemporary Giulio Douhet, Mitchell passionately believed air power would play a decisive role in future combat. This belief guided him on his crusade for air power, with methods consistent with Trenchard's assessment. Mitchell was incapable of compromise, he frequently shifted his viewpoint to better support his arguments, and he routinely chastised peers and superiors alike, often in public, which ultimately led to his court martial and resignation from the Army.[40] By 1936, at the time of his death, Mitchell had alienated almost everyone he knew, including politicians inside Washington, writers in the press, former friends and colleagues in the aviation industry, and even fellow airmen. Alfred Hurley speculated many airmen believed he was actually doing more harm than good in the latter stages of his career and life, highlighting that ardent believers such as Lt. Col. Henry "Hap" Arnold were willing to accept the latest Army proposals that remained far short of an independent service.[41] Among other things, Mitchell taught American airmen that progress toward an independent air force must be slow.

Ironically, after marginalizing himself through two decades of incessant crusading, at the time of his death Mitchell's influence on airmen had never been greater. Despite failing in his goal to create an independent air force, he successfully created an air culture within the Army to be carried on by his many protégés, including Arnold, Carl Spaatz, Ira Eaker, Kenneth Walker, and Robert Olds.[42] In their leader's absence, these and other air power insurgents continued indoctrinating the next generation of airmen at the Air Corps Tactical School, an institution Mitchell had been instrumental in founding, teaching doctrine and tactics Mitchell had been

[40] Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power* (Bloomington, IN: Indiana University Press, 1964), 134 and 147.
[41] Hurley, *Billy Mitchell*, 134.
[42] Clodfelter, "Molding Airpower Convictions," 107.

instrumental in writing.[43] For his influence on Arnold's generation and all those that followed, Mitchell's thoughts on decisiveness and conclusiveness are as relevant as Douhet's, regardless of how his Army career, or his life, came to a close.

Mitchell on Decisiveness and Conclusiveness

Both *Winged Defense* and *The Command of the Air* are essentially manifestos promoting the preeminence of air power. While Douhet emphasized the offensive nature of air power, Mitchell attempted to sell air power as the cornerstone of American national defense. The differences in their approaches stem largely from each man's attempt to frame the argument to his own country's national, political, and economic situation. Neither man necessarily intended for all of his concepts to have universal application, although critics often suppose as much. Douhet emphasized multiple times that his work was specific to Italy, whereas Mitchell clearly adopted an American perspective. Capitalizing on a culture of isolationism, Mitchell aimed to convince Americans air power was better suited than naval power at guarding the nation's vast oceanic boundaries.

In *Winged Defense*, Mitchell defined *air power* as the "ability to do something in the air."[44] He then added air power offers "decisive military advantages," and "air power will be a determining factor in international competitions, both military and civil."[45] Like Douhet and Jomini, Mitchell was also inclined to using *decisive* and *determining* to express both the concepts of decisiveness and conclusiveness. When rhetoric is pushed aside and the concepts are broken down, one finds a similar argument to that of Douhet: achieving and exploiting control of the air will be decisive in major combat, and air power can be conclusive if used correctly.

[43] Clodfelter, "Molding Airpower Convictions," 109.
[44] Mitchell, *Winged Defense*, xii.
[45] Mitchell, *Winged Defense*, x and xiv.

Mitchell believed future wars would begin with great battles for "control of the air," his equivalent phrase to Douhet's "command of the air."[46] Once a nation secured control of the air, airplanes could fly over the hostile country at will, but this did not imply an end to hostilities. He conceded "any decision in war is based on what takes place ultimately on the ground," but he also added the role of armies will remain much the same in the future unless air power prevents them from operating.[47] In clear terms, Mitchell argued air power would become so dominant armies and navies would not be able to exist without control of the air over them, let alone effectively function.[48] He further asserted future "contests will depend primarily on the amount of air power that a nation could produce and apply."[49] The side that fails to plan accordingly is destined to "accept without question the dominating conditions of its adversary."[50]

Unlike Douhet, Mitchell believed control of the air depended on pursuit aviation.[51] While Douhet conceded pursuit aircraft are necessary to protect bomber formations, he argued bombers would achieve command of the air by attacking the adversary's air force on the ground and its aviation industry; although curiously in Douhet's "The War of 19—" the Germans achieved command of the air through massive air battles. In this respect, Mitchell argued aerial warfare would proceed along the lines of Douhet's 19— scenario, not necessarily his previous writings. To Mitchell, the key was to send bombers at a target worth defending and force a major battle between pursuit aircraft, essentially a Jominian approach to air power.[52] To achieve control of the air, strategists must identify decisive points and attack with overwhelming power to force enemy pursuit aviation into the air in decisive battles. In Douhet's case, the aerial battle

[46] Mitchell, *Winged Defense*, 10.
[47] Mitchell, *Winged Defense*, 18.
[48] Mitchell, *Winged Defense*, xv.
[49] Mitchell, *Winged Defense*, 31.
[50] Mitchell, *Winged Defense*, xvi.
[51] Mitchell, *Winged Defense*, 164.
[52] Mitchell, *Winged Defens*e, 9.

was more of a byproduct of the contact between massive fleets; for Mitchell, it was the desired effect.

With control of the air secured, the military as a whole could then go about the business of exploiting the air to achieve the desired political objectives and conclude the war. During this phase, Mitchell believed control of the air would enable the actions of the other services and those of attack aircraft and bombers.[53] Although to Mitchell, attack aviation consisted of heavily armored aircraft flying at low altitude to target "ships on the seas or on canals, railroad trains, motors, convoys or anything of that nature."[54] With attack aircraft focused on interdiction, the bombardment branch should target the adversary's "power to make war…the manufactories, the means of communication, the food products, even the farms, the fuel and oil and the places where people live and carry on their daily lives."[55] He believed the effects of an "unrestricted air attack" on industry and the population would be so devastating that one side would be willing to capitulate without a prolonged ground or naval campaign.[56] At first glance, this argument for strategic attack seems to conflict with Mitchell's previous statement, that a decision depends upon what happens on the ground, but his caveat still applies: armies will do what they always have but only if "air power does not prevent them from operating." Initially, this caveat seems focused at the adversary army. In fact, Mitchell believed air power could prevent friendly land forces from operating as well, not because of their destruction, but because air power could conclude the war on its own.

To help clarify when air power might be conclusive, Mitchell described three classes of industrialized countries. The first is a partially self-sufficient island nation on the order of

[53] Mitchell, *Winged Defense*, 164-172.
[54] Mitchell, *Winged Defense*, 171.
[55] Mitchell, *Winged Defense*, 127.
[56] Mitchell, *Winged Defense*, 122.

England or Japan in which control of the air can either enable or prevent an invasion to or from the continent. If the island nation cedes control of the air, the opposing air force alone might conclude the war by attacking the island nation's ports and cities.[57] The second class is a partially self-sufficient continental country which borders its adversary; think France or Germany. In this case, the stronger air force would achieve control of the air and then "might bring victory unaided" through destruction of industry and transportation while "laying waste" to all the important cities.[58] The final class he described is a self-sufficient country such as the United States—one well beyond the normal reach of aircraft, and one for which offensive options are not available without first deploying forces. The message for American aviation is clear: although pursuit and attack aircraft might be able to prevent an invasion, once control of the air was established over any other industrialized nation, bombers could be conclusive.

Like Douhet, Mitchell presented us with a clear choice once control of the air is established. He believed decisions in war depend on the situation on the ground; but he also believed air power could greatly influence that situation. Control of the air and its subsequent exploitation would be the decisive enabler; victory would then no longer be a question of *if* but of *how*, *when*, and *at what cost*. The first, more traditional method of concluding the war would be for the air force to support the army. Naturally, he advocated for a second indirect approach. With air superiority established, bombers would bypass fielded forces en route to population centers, infrastructure, and transportation, thereby directly targeting adversary will and morale.[59] Although, this approach might seem more barbaric, Mitchell had seen the horrors of World War I first-hand and believed air power provided the military with a faster, cleaner method of deciding and concluding war.

[57] Mitchell, *Winged Defense*, 10.
[58] Mitchell, *Winged Defense*, 11.
[59] Mitchell, *Winged Defense*, 127.

Conclusion

Although there were certainly differences in the specifics of their arguments, Douhet's and Mitchell's theories on air power were remarkably similar. Both men conceived of command or control of the air as the essential condition, from here on referred to as air superiority. Douhet believed the most efficient method to secure air superiority was through the bombardment of enemy air fields; Mitchell believed massive aerial battles would determine air superiority. In either case, both men firmly believed an air force must be organized, trained, and equipped to secure this essential condition.

With air superiority secured, independent air forces should next seek to conclude the war through strategic attack. Douhet was inclined to focus on adversary morale; Mitchell advocated targeting the adversary's industry. But even if an independent air force was unable or unwilling to be conclusive, air power would still be decisive if it could exploit air superiority to such a degree that victory for one side and defeat for the other logically followed. In other words, both men recognized air power had to exert some degree of influence over the ground to be decisive.

Of course neither Douhet nor Mitchell utilized the terms *decisive* or *conclusive* in the precise manner described in this chapter, but this is unsurprising. A review of Clausewitz and Jomini reveals that all four men failed to articulate the difference between the concepts of war-determining and war-ending. For centuries, the word *decisive* existed as a catchall term encompassing the two distinct concepts. But after separating these concepts into two distinct terms, and after reading Douhet's and Mitchell's works with this separation in mind, one can reasonably overlay the proposed definitions on top of their writings to gain a deeper understanding of what both men believed.

From both men springs a consistent and succinct theory of air power: securing and exploiting air superiority will be decisive; air power can then be conclusive by targeting the adversary's material and moral resistance. How does their theory of air power hold up to the experience of World War II? Brodie believed World War II proved Douhet wrong on "every salient point he made" and to suggest otherwise was to "engage in propaganda, not analysis."[60] Maybe it is not quite that absolute. Although Brodie had legitimate concerns about how Douhet's theories impacted the culture of airmen as the world entered the thermonuclear era, a case study of the Guadalcanal Campaign in 1942 reveals that Douhet's and Mitchell's ideas are still relevant and worth exploring, especially as they relate to decisiveness and conclusiveness. From analyzing air power's contributions in what many historians consider to be the decisive campaign of the Pacific, we can move beyond definitions of *decisive* and *conclusive* and toward a practical method of applying these terms at the various levels of war.

[60] Brodie, *Strategy in the Missile Age*, 101.

Chapter 3

The Context of the Guadalcanal Campaign

Strategies and Grand Strategies

B.H. Liddell Hart believed the role of grand strategy—or higher strategy as he also called it—is to "coordinate and direct all of the resources of a nation, or band of nations, towards the attainment of the political object of the war."[1] He further argued that while the "horizon of strategy is bounded by the war, grand strategy looks beyond the war to the subsequent peace."[2] Conversely, the strategic level of war—what Liddell Hart referred to in his discussions as *Pure or Military Strategy*—focuses "first and most, on a sound *calculation and co-ordination of the end and the means*."[3] One way of summarizing Liddell Hart's delineation is strategy focuses largely on theater-level logistics, while grand strategy focuses on setting the objective and then ensuring national resources are available to support the war effort. Although the line between the strategic and grand strategic levels of war is often blurry, World War II offers a clear distinction because two major theaters existed for both the Japanese and the Americans. Decisions that impacted both theaters were typically grand strategic in nature, while those decisions that impacted only one theater largely occurred at the strategic level of war.

For the Allies, and more specifically for the U.S., World War II grand strategy focused around two core elements. First, the Allies believed Germany to be the larger threat, and they pursued a grand strategy to defeat Germany first. Even after the surprise attack in the Pacific, the U.S. was quick to reaffirm their plans to focus on Europe at the Arcadia Conference in

[1] B.H. Liddell Hart, *Strategy*, 2nd ed. (New York: Meridian Publishers, Inc., 1991), 322.
[2] Liddell Hart, *Strategy*, 322.
[3] Italics in original. Liddell Hart, *Strategy*, 322.

January, 1942.[4] This grand strategy ensured commanders in the Pacific would be less resourced than their counterparts in the European theater.

Second, the Allies stressed economic mobilization and production on an unprecedented scale.[5] In 1938, the U.S. held over 30 percent of the world's manufacturing capacity; Japan held just under 4 percent. In that same year, the U.S. also produced five times more steel than Japan, almost seven times more coal, and over 75 times more motor vehicles. As war approached, the U.S. turned its dominance in commercial production into a staggering advantage in military production. In 1942 alone, the U.S. produced almost 50,000 aircraft as compared to less than 9,000 for Japan. Certainly the U.S. was supporting another theater, but Japan was as well. Based on additional war requirements, primarily on the Asian mainland, Japan was only able to divert about 15 percent of all war resources to the Pacific theater.[6] But even with overwhelming industrial superiority, the Wehrmacht's hasty victory over the French Army in 1940 demonstrated the outcome of war is not preordained by advantages in industry and production.[7] Victory has to be earned by men willing to fight, and commanders and a population willing to send soldiers to their death.[8]

Although neither side desired a long protracted war, only the Allies had the industrial strength to support such a grand strategy, but there were two critical vulnerabilities. First, according to Gerhard Weinberg, it was questionable whether the U.S. would "pay the price in blood and treasure to retake islands of which they had never heard of, only to be returned to

[4] John B. Lundstrom, *The First South Pacific Campaign: Pacific Fleet Strategy, December 1941-June 1942* (Annapolis, MD: Naval Institute Press, 1976), 19.
[5] All production statistics for this paragraph come from: Richard J. Overy, *The Air War: 1939-1945* (Washington, DC: Potomac Books, Inc., 1980), 150-151, 210.
[6] Overy, *The Air War*, 93.
[7] James D. Hornfischer, *Neptune's Inferno: The U.S. Navy at Guadalcanal* (New York: Bantam Books, 2011), 424.
[8] Hornfischer, *Neptune's Inferno*, 424.

allies for whose colonial empires they had only disdain."[9] In other words, at the grand strategic level, total war required a total commitment from the American population. Second, even if the American population was willing to commit its resources to a long-term war of attrition, the U.S. still had to project its power across the expanses of the Pacific. Thus, at the strategic level, the U.S. had to maintain the critical sea lines of communication to ensure personnel and supplies reached the front lines to fight. Since Japan could do nothing about American industrial superiority, it targeted both of these American critical vulnerabilities.

Frequently, historians criticize the Japanese for a lack of strategy in initiating the war with the U.S. In *Every War Must End,* Fred Iklé chastised the Japanese government for failing to determine how the war would conclude *before* attacking Pearl Harbor. It was not that those in power never asked the question, he argued, "merely the answer was missing."[10] It sounds damning after the fact, but this is primarily because Japan lost. Whereas Iklé looked at the Japanese plans and saw them riddled with hopes and possibilities, a military planner might look at those same Japanese plans and see assumptions, a necessary evil in military planning.[11] Japan knew the Allies possessed industrial superiority. If the Allies could bring that superiority to bear in a protracted unlimited war, the Empire could not win.[12] Thus, Japanese leaders made one critical assumption that guided their strategy and their planning: Japan could keep war in the Pacific limited.[13]

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[9]Gerhard L. Weinberg, *A World at Arms: A Global History of World War II* (New York: Cambridge University Press, 1994), 344.

[10] Fred Charles Iklé, *Every War Must End*, 2nd ed. (New York: Columbia University Press, 2005), 3.

[11] Current U.S. joint doctrine defines an *assumption* as "a supposition about the current situation or future course of events, assumed to be true in the absence of facts. Assumptions that address gaps in knowledge are critical for the planning process to continue." Joint Publication 5-0, *Joint Operation Planning*, 11 August 2011, IV-7 to IV-8.

[12] Iklé, *Every War Must End*, 3.

[13] H.P. Willmott, *The War with Japan: The Period of Balance, May 1942-October 1943* (Wilmington, DE: Scholarly Resources, Inc., 2002), 4.

Just as the U.S. was focused on Europe, Japan's main focus was on the Asian mainland. Its motives in World War II resulted from a much larger clash of cultures between the East and the West that began in 1853 when Commodore Perry "forced the Japanese to enter the modern world."[14] Japan's response to Western colonialism in East Asia was to institute Japanese colonialism on the Asian mainland. Dubbed the Asian Monroe Doctrine, Japanese officials articulated this policy in 1932 after their initial success in Manchuria.[15] Ultimately, this grand strategy manifested itself in the Japanese desire to dominate China, Korea, French Indochina, and Siberia as well. In this respect, the war on the Asian mainland was Japan's unlimited war and primary theater. As the war broadened in Asia, so too did the Japanese demand for manpower and resources; but as Hoyt highlighted, "the Imperial War philosophy that had permeated the nation from top to bottom made the creation of cannon fodder easy." The true shortfall was gasoline, which drove the Japanese into the Pacific.[16]

Unlike operations in Asia, the extension of the Greater East Asia Co-Prosperity Sphere south into the Pacific was a limited strategic endeavor to secure resources and to construct a defensive perimeter against a potential American or British counter.[17] In hindsight, the extension of the war into the Pacific was clearly a flawed strategy; but at the time, it was perhaps Japan's only possible course of action based on its desire to dominate East Asia. Japan had to abandon its unlimited war in China, thereby conceding its overall grand strategy of evicting the imperialist West from East Asia, or risk limited war with the U.S. and Great Britain by securing resources deeper into the Pacific. Furthermore, the Japanese believed the cost of failure in a

[14] Edwin P. Hoyt, *Japan's War: The Great Pacific Conflict, 1853-1952* (New York: McGraw Hill Book Co., 1986), 423.
[15] Hoyt, *Japan's War*, 107-109.
[16] Hoyt, *Japan's War*, 205.
[17] Hoyt, *Japan's War, 203-206.*

limited war would be limited as well.[18] In short, with the U.S. focused on unlimited war in Europe and Japan focused on unlimited war in East Asia, it was reasonable for the Japanese to believe their antagonist in a Pacific conflict would be content to fight a limited war for limited objectives with limited consequences. In hindsight, it appears the Japanese believed they could influence the character of the war through what appears to be a Corbettian limited war strategy.

In *Some Principles of Maritime Strategy,* Sir Julian Corbett's main critique of *On War* was that Clausewitz failed to grasp the full importance of differentiating between limited and unlimited wars.[19] Corbett advanced two criteria to characterize a limited objective: first, the objective "must not be merely limited in area, but of really limited political importance"; and second, "it must be so situated as to be strategically isolated or to be capable of being reduced to practical isolation by strategical operations."[20] Corbett then added:

> We come, then, to this final proposition—that limited war is only permanently possible to island Powers or between Powers which are separated by sea, and then only when the Power desiring limited war is able to command the sea to such a degree as to be able not only to isolate the distant object, but also render impossible the invasion of his home territory.[21]

Aside from the strike on Pearl Harbor, which served a different purpose, Japan targeted objectives it believed were of limited political importance to the U.S. Japan had no desire to invade the continental U.S. nor to force an American unconditional surrender; the Army even balked repeatedly at the request by Admiral Isoroku Yamamoto, commander of the Combined Fleet, to study an invasion of Hawaii.[22] With the general mood of the average American still largely against any overseas involvement, the Japanese doubted that Americans would fight to

[18] Willmott, *The War with Japan*, 4.
[19] Julian S. Corbett, *Some Principles of Maritime Strategy* (Annapolis, MD: Naval Institute Press, 1988), 52-53.
[20] Corbett, *Some Principles of Maritime Strategy*, 55.
[21] Corbett, *Some Principles of Maritime Strategy*, 57.
[22] Hoyt, *Japan's War*, 217-218.

recapture places such as New Ireland, New Britain, and the Dutch East Indies.[23] Even the names reeked of European colonialism, and Corbett would likely have agreed these islands were of little political value to the U.S. and might serve as a limited objective.

Regardless of the importance of the objective, Corbett further believed only island or isolated nations, such as Japan, Great Britain, or the U.S., were capable of fighting limited wars. Contiguous states, such as Germany and France, were unable to engage in a permanent limited war because neither side could prevent the other from an "unlimited counterstroke."[24] There was no guarantee the fight would remain limited because, as Clausewitz asserted, there is "no logical limit" to the application of force as each side attempts to impose its will on the other.[25] So although a war could be limited "morally by [the object's] comparative unimportance," unimportance is in the mind of the adversary.[26] A state pursuing what it believes to be a limited objective must still prepare for the potentiality of an unlimited counterstroke, with one exception.

As a maritime power with a strong navy, Japan could preserve the limited character of the war by establishing command of the sea, or the "control of maritime communications" according to Corbett.[27] Regardless of Allied industrial superiority or American resolve, personnel and resources still had to be transported to the front lines. Even air power, despite is inherent speed, range, and flexibility, was subject to the requirement for strategic command of the sea. Wesley Craven and James Cate highlighted as much in the Army Air Forces' official history of the war:

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[23] Richard B. Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990)*anal*, 615-616.
[24] Corbett, *Some Principles of Maritime Strategy*, 57.
[25] Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 77.
[26] Corbett, *Some Principles of Maritime Strategy*, 59.
[27] Corbett, *Some Principles of Maritime Strategy*, 94.

> Despite all the mobility inherent in aircraft…mobility was bound down to a relatively narrow arc in front of the maximum advance of the line of supply. And that line of supply lay upon the surface of the water. Where the ships could not move with some reasonable degree of safety, or where risk of their loss could not or would not be accepted, air operations not only were hampered—they came perilously close to a full stop.[28]

With control of maritime communications, Corbett theorized an island or isolated state could physically limit the war by the "strategical isolation of the object."[29] Regardless of how much land power or desire an adversary possessed to deliver an unlimited counterstroke, the adversary would be unable to escalate the war if it lacked the ability to move its forces across the seas.

The method the Japanese chose to pursue command of the sea, however, reflected the influence of Alfred T. Mahan on Japanese maritime strategy. Well before the turn of the century, Mahan's works were translated into Japanese and were required reading at naval schools.[30] Much like the American Navy, the Japanese took from Mahan the importance of seeking out a climactic decisive battle to secure command of the sea; previous naval wars with China and Russia supported this approach.[31] In this respect, the attack on Pearl Harbor and the great carrier battles of 1942 were all attempts to destroy the striking power of the U.S. Pacific Fleet in one climactic, decisive naval battle. Although Corbett would likely have advised against sailing to Hawaii in search a decisive naval battle, had the Combined Fleet achieved the destruction of the American carriers at any point early in the war Japan might have accomplished Corbett's objective of physically isolating the object, at least temporarily.

The Japanese knew they could not secure command of the sea over the long-term should the full force of Allied industrial superiority be brought to bear. Eventually, the U.S. would

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[28] Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II, Volume Four, The Pacific: Guadalcanal to Saipan, August 1942 to July 1944* (Chicago, IL: Chicago University Press, 1950), 43-44.
[29] Corbett, *Some Principles of Maritime Strategy*, 59.
[30] Ronald H. Spector, *Eagle Against the Sun: The American War with Japan* (New York: The Free Press, 1985), 43.
[31] Spector, *Eagle Against the Sun, 9 and 43-44.*

produce more ships and aircraft, but destruction of the Pacific Fleet might buy the Japanese a year or more as the U.S. transitioned to wartime production and pursued its Germany-first grand strategy. During this time, the Japanese could solidify an imposing multi-layered defensive perimeter and then wait for the Americans to attack. Faced with a brutal battle over each Pacific island, eventually, the American population might lose interest in fighting to recapture ex-European colonies, especially when the larger threat was in Europe. This strategy sounds reasonable enough, and it could have worked. Clearly it failed. Why? Guadalcanal.

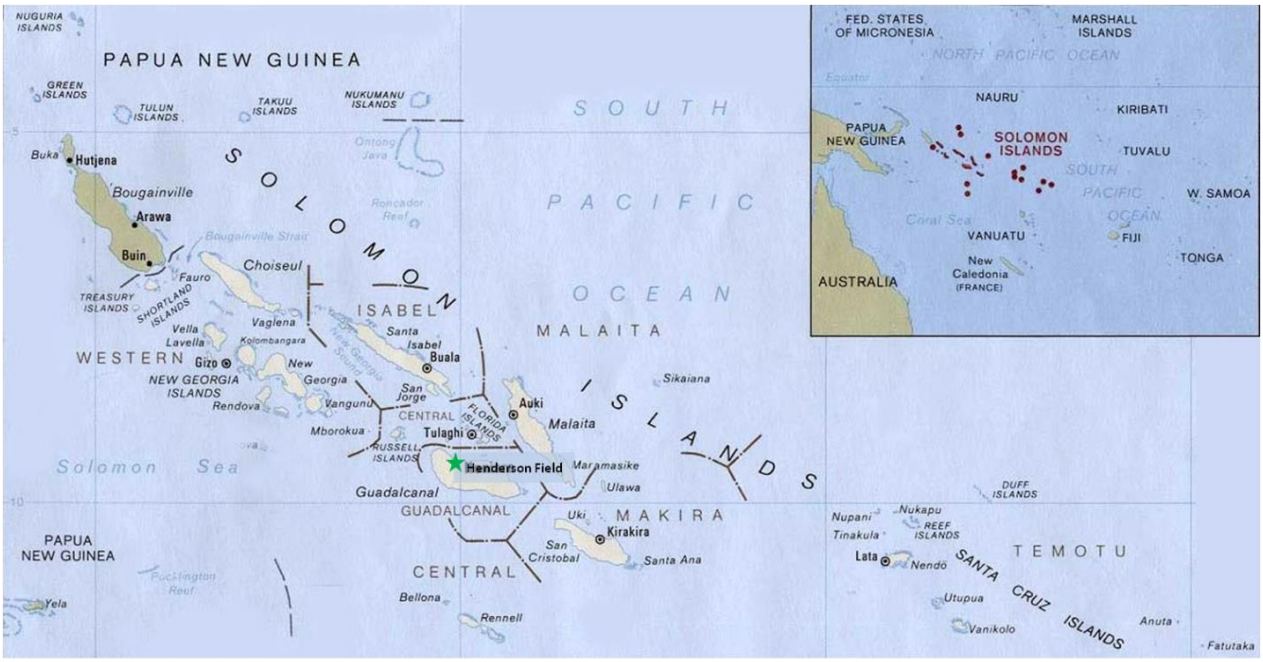

Figure 1: The Solomon Islands

A Decisive Meeting Engagement

Resting near the southeastern end of the Solomon Islands, the island of Guadalcanal is one of the largest fixtures of the 675 mile-long chain of several hundred volcanic islands. Although Guadalcanal is relatively large, 90 miles in length, the entire Guadalcanal Campaign focused around a small grassy plateau on the northeast side of the island. Covered in jungle and

riveted with creeks and waterways, the region offers preciously few locations suitable for airfield construction. Northwest of Guadalcanal by over 550 miles, Rabaul sat on the northern tip of New Britain. Its significance lay with its magnificent port and its numerous locations amenable to airfield construction. Buka Island, almost 500 miles northwest of Guadalcanal, offered a second viable location for airfield construction. During the campaign, the Japanese attempted to construct a third, smaller airfield named Buin on southern tip of Bougainville. Unfortunately for the Japanese, the completion of Buin slipped repeatedly past its mid-August projection due to defective designs, defective leadership, lack of heavy engineering equipment, and heavy rain.[32] And even Buin was still about 350 miles from Guadalcanal. The only suitable option south of Bougainville in the Southern Solomons was Guadalcanal itself.

Ironically, the Japanese discovered its importance largely by accident. Across from Guadalcanal lies the island of Tulagi. In 1941, the Australian Territory of New Guinea controlled Bougainville and Buka, while the British Solomon Islands Protectorate controlled the remainder of the Solomon Islands. The resident British commissioner lived on the small island of Tulagi, where he presided over 700 foreigners and almost 100,000 natives living in the Solomons. After capturing the island in early May, 1942, the Japanese intended to utilize Tulagi as a seaplane base to monitor Rabaul's southeastern flank.[33] On a routine foraging expedition, the Japanese discovered the grassy plain on the northeastern coast of Guadalcanal.[34] By mid-June, the Japanese Naval General Staff decided to construct an airfield on Guadalcanal as a key piece in the next defensive perimeter in the South Pacific. By early July, over 2,500 Japanese engineers were working on the project.

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[32] Frank, *Guadalcanal*, 276.
[33] Eric M. Bergerud, *Fire in the Sky: The Air War in the South Pacific* (Boulder, CO: Westview Press, 2000), 73.
[34] Bergerud, *Fire in the Sky*, 73.

Following the stunning victory at Midway, American planners sought various strategies to exploit the success. In late June, prior to learning of Japanese construction on Guadalcanal, Admiral Ernest King, Chief of Naval Operations, sent a draft directive to General George C. Marshall, the Army Chief of Staff, describing the urgency of the situation in the Pacific. Believing it necessary to seize the initiative from the Japanese, King recommended an August 1 offensive to secure the Santa Cruz Islands and positions in the Solomons as the initial stages of a strategic offensive to secure eastern New Guinea and New Britain.[35] By early July, Marshall, King, Admiral Chester Nimitz, Commander in Chief of Pacific Forces, and General Douglas MacArthur, Commander in Chief of Southwest Pacific Forces, were in agreement on an overall offensive titled Operation Pestilence.[36]

Pestilence consisted of three major tasks. Task One, code-named Operation Watchtower, included the seizure of Tulagi and the Santa Cruz Islands by Marine forces, with command delegated to Vice Admiral Robert Ghormley, Commanding General of South Pacific Forces (COMSOPAC). Tasks Two and Three, commanded by MacArthur, would focus on the capture of the northeastern New Guinea coast and then Rabaul. The plans shifted dramatically on July 5 when the Americans discovered the Japanese had started construction on an airfield at Guadalcanal.[37] King and Nimitz immediately struck the Santa Cruz Islands as an objective for Task One, shifted the priority from Tulagi to Guadalcanal, and tasked the 1st Marine Division to seize the airfield before the Japanese could finish construction.[38] The amphibious assault on Objective Cactus, the code-name for Guadalcanal, was slated for August 7.

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[35] Grace Person Hayes, *The History of the Joint Chiefs of Staff in World War II: The War Against Japan* (Annapolis, MD: Naval institute Press, 1982), 143-144.
[36] Frank, *Guadalcanal*, 34-35.
[37] Frank*, Guadalcanal, 35-36.*
[38] Bergerud, *Fire in the Sky*, 73-74 and Frank*, Guadalcanal*, 36.

As compared to Operation Torch, Watchtower was woefully under-resourced and lacked clear purpose. Dubbed Operation Shoestring by those involved, even Ghormley had doubts about its strategic purpose. As COMSOPAC, his first task was to secure the sea lanes to Australia and New Zealand; in his perspective, Watchtower was the second priority. In its entirety, Pestilence was designed to prevent the expansion of the Japanese empire further into the South Pacific. But whereas King, Nimitz, and others saw it as the opening stages of a new strategic offensive, Ghormley believed it to be an operational offensive within the larger construct of a strategic defensive in the Pacific.[39] This concept certainly meshed with the Germany-first grand strategy, and it limited his willingness to accept risk during the operation.[40]

Despite Ghormley's reluctance, King and Nimitz pushed forward with little hesitation. As Eric Bergerud concluded, "Rarely if ever in American military history have ground troops and a fleet been assembled so quickly as the task force that struck Guadalcanal."[41] If the assault failed, Watchtower would have been judged a "haphazardly conceived fantasy" by King's rivals in Washington—a waste of men and resources in the war's secondary theater.[42] It would have been written off as King's signature folly, and he might have fallen in the second major shakeup of senior Navy personnel in the war, the first coming after Pearl Harbor. It is within this context that on August 7, 1942, marines stormed the beaches of Guadalcanal in the first American offensive action of World War II, three months before the invasion of North Africa. Over the next three months, the importance of the campaign would escalate well beyond either side's

[39] Frank, *Guadalcanal*, 56-57.
[40] Frank, *Guadalcanal*, 57.
[41] Bergerud, *Fire in the Sky*, 74.
[42] Hornfischer, *Neptune's Inferno*, 425.

initial expectations, as the campaign to capture or defend the airfield became far than just a struggle over a geographic decisive strategic point, to use Jomini's terminology.[43]

Returning to the four factors Clausewitz identified that influence the weight of the decision of a battle, it is easy to see how the Guadalcanal Campaign gradually developed into a decisive meeting engagement. First, the tactical character of the battle in the Pacific was greatly shaped by Clausewitz's second factor: the terrain. In an area of operations that covers almost 50 percent of the surface of the earth and is mostly water, military operations were dominated by the speed, range, and flexibility of air power. As Richard Overy highlighted, both the Americans and the Japanese were "more dependent on the use of air power than was the case in Europe with its traditional and influential land armies."[44] In Europe, air power typically supported land operations, with only a few independent operations such as the Combined Bomber Offensive or the Battle of Britain. Rarely did air considerations dictate strategy to the land component.

Air power in the Pacific, however, was fully integrated into every aspect of the war and was often the driving factor in strategy and tactics. Nowhere was this more evident than at sea. Regardless of either navy's pre-war doctrine, the air arms of the two carrier forces became the primary offensive weapons of the fleet from Pearl Harbor on. Victory or defeat in carrier battles depended largely on a Douhetian air order of battle: after using air power to locate the adversary's carrier force, each side would mass its aircraft in a large-scale attack on the adversary's aircraft carriers, often bypassing the other's air armada en route.[45] With the adversary's carriers destroyed and air superiority established over the battle area, the adversary's

[43] Antoine Henri de Jomini, *Art of War*, trans. By G.H. Mendell and W.P. Craighill. (Mineola, NY: Dover Publications, Inc., 2007), 78.
[44] Overy, *The Air War*, 85.
[45] Mark R. Peattie, *Sunburst: The Rise of Japanese Naval Air Power, 1909-1941* (Annapolis, MD: Naval Institute Press, 2001), 147; and Giulio Douhet, *The Command of the Air*, ed. by Joseph Patrick Harahan and Richard H. Kohn (Tuscaloosa, AL: The University of Alabama Press, 2009), 49-51.

surface vessels became vulnerable, even the vaunted battleship.[46] Thus, naval air power supported maritime strategy in the doctrinal sense, but the contrast from Europe was that air power fundamentally altered maritime strategy and tactics. The same was true on shore.

Through the island hopping campaigns of the Southwest Pacific, air power was just as pivotal in dictating success or failure. As MacArthur's lead airman Lieutenant General George Kenney advocated, the basic steps as Allied land forces advanced from one remote location to the next were simple: gain air superiority over the next objective, blockade it by air and sea, bomb enemy positions, support the amphibious landing, construct an airfield, and then "advance the bomber line some more."[47] Further complicating both sides' strategy, not all islands were suitable for airfield construction which placed additional emphasis on aligning land, maritime, and air objectives. Whether at sea or on shore, the terrain in the Pacific necessitated a deeper level of joint integration than what was required on the plains of northern Europe.

Just as Clausewitz's first two factors for determining the weight of a decision were closely related, so were his final two. Looking at both force composition and the relative strength of each side, both militaries were evenly matched in all three domains when one considers the Combined Fleet, the 11th Air Fleet at Rabaul, and the 17th Army were also supporting operations in New Guinea at the beginning of the campaign. Of course each side possessed differing strengths and weaknesses, but the loss of four aircraft carriers and their complement of 250 aircraft at the Battle of Midway established a rough parity of forces leading into the campaign.[48]

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[46] Peattie, *Sunburst*, 195.
[47] Thomas E. Griffith, Jr., *MacArthur's Airman: General George C. Kenney and the War in the Southwest Pacific* (Lawrence, KS: University of Kansas Press, 1998), 96-97.
[48] Joseph B. Mitchell and Edward S. Creasy, *Twenty Decisive Battles of the World* (New York: The Macmillan Company, 1964), 307.

With these four factors as they were, the only requirement remaining was for both sides to place a major portion of their forces at risk. If that occurred, both the Japanese and the Americans could "initiate a major decision," as Clausewitz predicted.[49] Such was the case in the battle for control over the airfield on Guadalcanal. By October, the Japanese believed the importance of retaking Guadalcanal had transcended that of capturing Port Moresby.[50] Subsequently, they committed large numbers of air, naval, and land forces to the effort, whereas previous efforts had been largely piecemeal. After Vice Admiral William "Bull" Halsey assumed command of South Pacific Forces in mid-October, the Americans also committed the vast majority of available resources to defending the airfield.[51]

Thus, by mid-November Guadalcanal met all of Clausewitz's criteria for a major decision, and in doing so it became an accidental strategic decisive point as Jomini would argue—a classic meeting engagement reminiscent of the battles of Gettysburg or Mars-la-Tour. Due to the small grassy plain on its northeast coast, Guadalcanal certainly possessed some inherent strategic value; but it was still largely an accident of history that the battle over this obscure island became the decisive campaign of the Pacific.

Conclusion

Hawaii, Australia, the Philippines, Okinawa. In 1941, few Japanese or American strategists would have been surprised to learn that one or more of these four locations might prove critical to a war in the Pacific. Few of them would have been able to point to Guadalcanal on a map; but often locations such as Guadalcanal are where wars are decided.

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[49] Clausewitz, *On War*, 260.

[50] Robert Sherrod, *History of Marine Corps Aviation in World War II* (Baltimore, MD: The Nautical & Aviation Publishing Co. of America, 1987), 114.

[51] Nimitz believed the situation required a more aggressive commander and selected Halsey as a result. Halsey quickly promised to send the Marines at Guadalcanal everything he had, and routinely committed all air and naval resources in his command to the fight. Sherrod, *History of Marine Corps Aviation*, 106.

Thomas Miller, Jr., after researching Allied air power on Guadalcanal between August and November, summarized the strategic impact of the Guadalcanal campaign as such:

> The long nightmare of Guadalcanal was decisive. From mid-November, 1942, until their empire came to an end on the quarterdeck of the *Missouri*, the Japanese were in bitter, reluctant, but constant retreat. Until Midway they might have won the war. Until the Battle for Guadalcanal, the United States might still have lost it. When the final lunge at Guadalcanal was turned back, the empire was doomed.[52]

Likewise, many Japanese recognized the significance of the campaign as well. "It must be said," went one captured Japanese intelligence report, "that the success or failure in recapturing Guadalcanal Island…is the fork in the road which leads to victory for them or for us."[53]

That Guadalcanal became the decisive campaign of the Pacific is largely an accident of history. Certainly the island possessed some inherent strategic value due to the character of island warfare. Based on the speed and range of aircraft, air power strategy was more integrated into overall military strategy in the Pacific as compared to Europe; and with few islands in the Solomons suitable for air operations, the flat plains off Lunga Point were intrinsically valuable. Yet it was the grand strategic and strategic context that dictated Guadalcanal's overall importance.

At the grand strategic level, the Pacific was the secondary theater for both Japan and the U.S. Based on resource limitations, the Japanese desired a limited war with limited consequences. Conversely, the U.S. mobilized its massive economy for a long-term war of attrition in both theaters, but two critical vulnerabilities stood in the way of bringing those forces to bear. At the grand strategic level, the American population had to be willing to support the

[52] Thomas G. Miller, Jr., *The Cactus Air Force*, special illustrated ed. (Reprint, Toronto, Canada: Bantam Books, 1987), 210.
[53] Quoted in Frank, *Guadalcanal*, 492.

costs of such a conflict in a distant and unfamiliar theater. And at the strategic level, the U.S. required command of the sea to deploy forces.

Despite counter-claims by Iklé and others, Japanese strategy targeted both of these critical vulnerabilities through a reasonable approach that mirrored Corbett's views on limited war. First, Japan seized objectives of perceived limited political value to Americans; and second, Japan relied on the Imperial Japanese Navy (IJN) to isolate the objectives geographically. But after multiple failed attempts to destroy the striking power of the U.S. Pacific Fleet, its carriers, in decisive battle, the Japanese found themselves responding to a surprise Allied invasion of Guadalcanal in early August 1942. Over the next three months, the Guadalcanal Campaign rapidly increased in intensity, thereby assuming Clausewitz's characteristics of a decisive event. As both sides continued to place more forces at risk, the U.S. and Japan initiated a major decision, with American will and command of the sea hanging in the balance. But despite the heavy emphasis on naval operations, air superiority dominated the operational and tactical levels of war through these early months, much as Douhet and Mitchell predicted.

Chapter 4

Attrition:
August 7 to October 26, 1942

Following World War I and the signing of the Washington Treaty, Japan revised its basic plan for war against the United States. The Japanese sought a decisive battle between the two treaty fleets; but they recognized they must first wear down the U.S. Pacific Fleet before confronting it directly.[1] Accordingly, the Japanese campaign plan was divided into two stages. First, submarines, land- and carrier-based aircraft, cruisers, and destroyers would weaken the Pacific Fleet in an attrition stage. Second, with the Pacific Fleet weakened, the Japanese would crush the remaining ships in a decisive stage with their battle line. As Ronald Spector noted, this plan was more a "blueprint for a campaign than for a sustained naval war."[2] Japan lacked the resources to execute such a strategy at the theater level. Accordingly, as war with the U.S. became a reality in late 1941, the Japanese discarded the attrition stage and pursued a decisive fleet action to bring the U.S. to the negotiating table.

The Combined Fleet failed to secure a major decision at Pearl Harbor, Coral Sea, or Midway, and the Japanese still sought to destroy the U.S. Pacific Fleet and secure their perimeter when they received word early on August 7 of American landing vessels near Tulagi. Admiral Yamamoto quickly ordered a "decisive counterattack" to the American amphibious assault, but the actual response was anything but quick or decisive.[3] Within the first 72 hours, the Japanese missed three golden opportunities to crush the invasion force. The Guadalcanal Campaign then settled into three months of escalating attrition warfare in the air, on land, and on the sea. In

[1] Ronald H. Spector, *Eagle Against the Sun: The American War with Japan* (New York: The Free Press, 1985), 44-45.
[2] Spector, *Eagle Against the Sun*, 44.
[3] Quoted in Richard B. Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990), 64.

search of decisive action, the Japanese found only attrition. And as the two treaty-Navies and both ground forces fought themselves to exhaustion in the waters and jungles surrounding Henderson Field, American air superiority established the character of the campaign at the operational and tactical levels of war.[4]

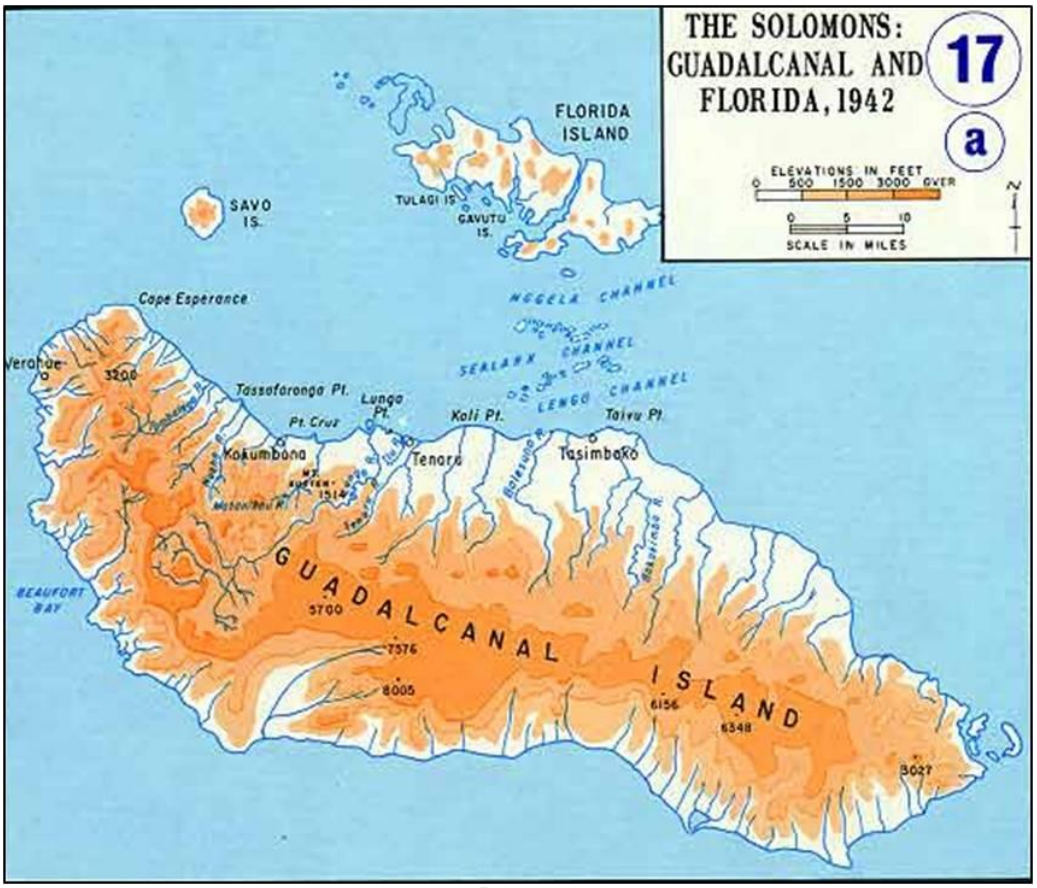

Figure 2: Guadalcanal Island[5]

Missed Opportunities, August 7-10

Eight months to the day after the attack on Pearl Harbor, the 1st Marine Division achieved complete surprise in its dual landings at Tulagi and Guadalcanal. Fighter aircraft from

[4] H.P. Willmott, *The War with Japan: The Period of Balance, May 1942-October 1943* (Wilmington, DE: Scholarly Resources, Inc., 2002), 127.
[5] Thomas E. Griess, ed., *West Point Atlas for the Second World War: Asia and the Pacific* (Garden City Park, NY: Square One Publishers, 2002), 17.

Vice Admiral Frank Jack Fletcher's Task Force 61—consisting of *Enterprise*, *Saratoga*, *Wasp*, and their escorts—supported the first American offensive of World War II with almost one hundred sorties.[6] While heavy cruisers bombarded Japanese coastal positions, American fighters made short work of Japanese flying boats and the eight A6M2-N float Zeroes ("Rufes") stationed in the waters near Tulagi.[7] By mid-morning, the marines on Guadalcanal were slowly making their way unopposed through the jungle to the unfinished airfield approximately five miles west. At Tulagi, and the smaller island of Gavutu-Tanambogo, four Marine battalions overwhelmed the Japanese defenders and eventually captured the islands on August 9; 122 marines were killed in action compared to over 800 Japanese.[8]

As reports trickled back to Rabaul about the American invasion, Yamamoto's decisive counterattack took the form of an air raid by the Japanese Naval Air Force's (JNAF) 11th Air Fleet stationed at the airfields surrounding Rabaul. As of July, the authorized strength at Rabaul was 160 aircraft, including 48 Mitsubishi G4M1 Type 1 twin-engine bombers ("Bettys") and 92 A6M2 fighters ("Zeros").[9] Authorized Zero strength was further divided into 60 Model 21 long-range Zeros, sometimes referred to as "Zekes," and 32 newer Model 32 short-range Zeros with larger engines that sacrificed range for a slightly superior speed.[10] Over the next several months the difference between the two Zero-types was critical as only the Model 21 long-range Zero had a sufficient combat radius to reach Guadalcanal. But after several months of battling "a

[6] John B. Lundstrom, *The First Team and the Guadalcanal Campaign: Naval Fighter Combat from August to November 1942* (Annapolis, MD: Naval Institute Press, 1994), 35.
[7] All aircraft losses detailed in this chapter and the next are taken from Richard B. Frank's *Guadalcanal: The Definitive Account of the Landmark Battle*. Whereas many other official Army Air Force, Marine Corps, and Navy works put forward the number of kills claimed as actual losses, Frank includes aircraft claims and actual aircraft losses, as best as can be determined. In his appendix, "A Note on Sources," Frank credits John Lundstrom, author of *The First Team and the Guadalcanal Campaign*, with reviewing many of the American and Japanese primary documents to gain more accurate loss data, although in some cases Frank's and Lundstrom's reported losses vary slightly. As a general rule, Frank notes that aircraft claims often exceeded actual kills by a measure of 2:1 or 3:1.
[8] Frank, *Guadalcanal*, 79.
[9] Lundstrom, *The First Team*, 43.
[10] Eric M. Bergerud, *Fire in the Sky: The Air War in the South Pacific* (Boulder, CO: Westview Press, 2000), 25.

seemingly endless supply of Royal Australian Air Force (RAAF) and U.S. Army Air Force (AAF) squadrons at Port Moresby and northeast Australia," the 5th Air Attack Fleet was operating at only 61% strength.[11] Even after recent augmentation for a major attack against Milne Bay, New Guinea also scheduled for August 7, Rabaul possessed only 32 of 48 Bettys and 24 of 60 long-range Zeros.[12] As a result, the air raid was far less powerful than it otherwise would have been.

Japan lost its first golden opportunity to crush the American invasion when it opted to launch the 27 Bettys with bombs rather than rearm them with torpedoes. Eighteen Zeros of the premier Tainan Air Group, which featured three of Japan's leading aces, escorted the bombers. Rabaul also launched a second unescorted strike of nine dive-bombers ("Vals") that lacked the range for the return leg. JNAF leadership directed the aircrew to land at Buka, but more realistically, they expected them to ditch in a pre-designated area.[13]

As they did with most air raids from Rabaul, Allied forces on Guadalcanal received significant warning time from coast watchers. Primarily an Australian outfit, the coast watchers consisted of a group of 41 visual observer stations scattered throughout the Solomon Islands.[14] Any Japanese air raid from Rabaul overflew two coast watchers on Bougainville which alerted Cactus to the general time and type of the raid. Another coast watcher at New Georgia then provided a critical 45-minute warning. This warning gave ample time for all scrambling Grumman F4F-4 Wildcats—the slow-climbing, air superiority workhorse—to gain sufficient altitude before the Japanese arrived. The warning also enabled Cactus to scramble the remaining operational fighters away from the base, thereby minimizing aircraft losses on the ground. By

[11] Lundstrom, *The First Team*, 42.
[12] Frank, *Guadalcanal,* 64.
[13] Frank, *Guadalcanal*, 65.
[14] Lundstrom, *The First Team,* 46.

September, the Marines also possessed an early warning radar that provided further intelligence on the inbound aircraft. As Richard Frank noted, "Without these warnings, Henderson Field, and ultimately Guadalcanal could not have been defended."[15] Such was the case on August 7 when Fletcher's TF-61 received multiple coast watcher warnings of an inbound Japanese strike force.

Japan's first strike on the unloading American transports was an unmitigated failure. Due to poor weather, high-altitude bomb-runs, and effective interference from 18 carrier-based Wildcats, all 27 Bettys missed their targets. Two hours later, the nine Vals arrived, inflicting only light damage to an American destroyer. Although the Navy lost ten aircraft due to the proficiency of the Japanese Zero pilots and the "marked superiority of the Zero in a dogfight," the Wildcats accomplished their mission of protecting Rear Admiral Kelly Turner's transports.[16] In the process, the Japanese lost five Bettys, two Zeros, and all nine Vals.

Aircrew losses were even more one-sided. Whereas the Americans recovered five of the eleven downed aviators, the Japanese recovered only three two-man Val crews that managed to ditch at the designated location. Of the 225 Japanese airmen that took off from Rabaul, 49 never returned, for 22 percent attrition. Many others, including one of Japan's greatest aces, Saburo Sakai, were injured and done for the campaign. Certainly many of the Japanese airmen died with their aircraft in air combat around Guadalcanal, but many other damaged aircraft were lost during the 565 mile return-trip to Rabaul. Had the Japanese developed a suitable airfield closer to Guadalcanal earlier in the campaign, many of these damaged aircraft would have survived, thereby preserving more airmen.

Through the course of World War II, attrition warfare stressed every aspect of Japanese combat power, aircraft, fuel, surface ships, submarines, shipping, etc., but a lack of proficient

[15] Frank, *Guadalcanal*, 207.
[16] Frank, *Guadalcanal,* 69.

airmen was one of the first problems to impact JNAF operations. Japan's "feudalistic" pre-war training focused on the creation of a small, elite pool of aviators.[17] Out of Sakai's initial pilot training class of 1,500 hopefuls, only seventy were accepted and only 25 graduated.[18] The few aviators that survived the grueling Naval Fliers School gained valuable combat experience in China and early in the Pacific war, but over time, the consequences of these elite training policies proved fatal.[19] The JNAF had only 3,500 pilots entering World War II and lacked sufficient reserves for attrition war.[20] Consequently, it was soon pushing the greenest of trainees to the front lines, and Americans noted the difference.[21] Returning to the air raid of August 7, while 30 percent attrition of aircraft was unsustainable over the long-term, especially when one considers not a single American transport was struck, 22 percent attrition in aircrew was even more problematic over the short-term. But if the Japanese losses on August 7 were unsustainable, the losses the following day were nothing short of catastrophic.

The air raids on August 7 highlighted two critical advantages for the Americans: proximity to the fight and intelligence. The air raid on August 8 highlighted a third critical advantage: advanced antiaircraft fire. Recognizing the threat air power posed to its surface ships, the U.S. Navy invested heavily in ship borne antiaircraft artillery (AAA). All new battleships, cruisers, and destroyers brandished a mix of radar-guided 5" AAA, Bofors 40mm guns, and the proven 20mm Oerlikon guns. Even the sluggish transports unloading supplies off Lunga Point averaged twelve of the 20mm guns per ship. The effects were devastating.

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[17] Mark R. Peattie, *Sunburst: The Rise of Japanese Naval Air Power, 1909-1941* (Annapolis, MD: Naval Institute Press, 2001), 191; and Frank, *Guadalcanal*, 66.
[18] Saburo Sakai, Martin Caidin, and Fred Saito, *Samurai!* (New York: E.P. Dutton and Company, Inc., 1958), 29-37.
[19] Peattie, *Sunburst*, 192.
[20] Peattie, *Sunburst*, 192.
[21] After witnessing Japanese fighter performance at Coral Sea and Midway, Commander Arnold E. True, Commander Destroyer Squadron 2, noted the fighter attacks in the Battle of the Santa Cruz Islands on *Enterprise* were conducted with "more ferocity and resolution," but with "a most marked decrease in skill." Quoted in Frank, *Guadalcanal*, 401.

On August 8, Yamamoto launched another large air raid from Rabaul of 26 Bettys and 15 Tainan Zeros aimed at destroying the American carriers. Based on reports from the previous day, Yamamoto expected two or three American carriers in the vicinity and made them the priority; the transports off Guadalcanal were of secondary importance.[22] After reconnaissance aircraft failed to find the American carriers, the Japanese bombers turned toward the American convoy, still in the process of unloading heavy supplies. Although the coast watchers warned of the incoming raid, only three Wildcats engaged the Japanese aircraft, who attacked from an unexpected azimuth after giving up on the carriers.

With minimal escort overhead, the Japanese had a second golden opportunity to destroy the transports. Unlike the previous day, when the Bettys attacked the transports from high-altitude, 23 of the seven-man bombers ingressed at low-altitude on a torpedo-attack.[23] U.S. Navy (USN) Wildcats claimed three Bettys and one Zero in the engagement, but AAA was the real assassin of the day. In the span of ten minutes, Navy gunners swatted 15 of the lumbering Bettys out of the sky as they flew their low-altitude profiles.[24] One additional Zero also failed to return, driving aircraft attrition to 43% for the mission; aircrew attrition was far higher. Of the 176 aircrew that made the trip to Rabaul, 77 percent never made it back: 127 were dead or missing after the mission and another nine were now prisoners of war.[25] In exchange, the Japanese airmen sank only one transport.

After two days of air combat "Rabaul's heavy strike force was in ruins," and the IJN turned to its surface fleet on the night of August 8-9 to destroy the transports.[26] During the Battle of Savo Island, a Japanese surface force of seven cruisers and a destroyer exploited

[22] Lundstrom, *The First Team*, 74.
[23] 26 Bettys launched from Rabaul but three had to return shortly after takeoff. Only 23 made the attack.
[24] Lundstrom, *The First Team*, 78; and Frank, *Guadalcanal*, 80.
[25] Lundstrom, *The First Team*, 78-79.
[26] Bergerud, *Fire in the Sky*, 558.

tactical surprise to embarrass a larger Allied task force that included six heavy cruisers, two light cruisers, and eight destroyers. In what Spector labeled the "the worst American naval defeat since 1812," the IJN sunk four Allied heavy cruisers and a destroyer, leaving over 1,000 Allied sailors dead and almost as many wounded.[27] In return, American ships scored only light damage to a cruiser. But despite the overwhelming tactical victory Vice Admiral Gunichi Mikawa achieved, the Battle of Savo Island was another missed opportunity for the Japanese at the strategic and operational levels of war.

After routing the Allied surface forces, Mikawa directed a retirement instead of the planned attack on the American transports. Despite his mission to destroy the transports only eight miles away, Mikawa believed he had to be at least 120 miles from Savo at daybreak to avoid heavy losses from Fletcher's aircraft. In retiring, he passed up the final golden opportunity to prevent the sustained American occupation of Guadalcanal. Operation Watchtower called for unloading operations for four days; as Frank determined, any of these three attempts to destroy the transports during this period, had they been successful, "would have ended the campaign shortly in ignominious defeat for the Allies."[28]

In blunting Allied naval power around Guadalcanal just two days into the campaign, Mikawa established a peculiar dynamic that dominated the next several months: Japanese maritime power controlled the night while American air power controlled the day. The IJN's superior naval strength and its night tactical expertise provided a distinct advantage over the USN from sunset to sunrise, and neither air arm proved competent at engaging naval targets to such a degree that outweighed the inherent risks of night aerial operations. Accordingly, night air power during the Guadalcanal Campaign played similar roles and held similar importance to

[27] Spector, *Eagle Against the Sun, 194; and* Frank, *Guadalcanal*, 83.
[28] Frank, *Guadalcanal*, 121.

those of air power during the early years of World War I. Although both sides utilized aircraft for night aerial reconnaissance, artillery spotting, and interdiction, from sunset to sunrise, maritime superiority dominated the character of warfare around Guadalcanal.

As Mikawa's actions and line of reasoning demonstrated, however, the Japanese admirals were always mindful of the preeminence of air superiority at sunrise. The sinking of the *Prince of Wales*, the Battle of the Coral Sea, and the Battle of Midway all contributed to a narrative that countered both countries' pre-war doctrine. Just as Mitchell predicted, battleships and heavy cruisers were no longer the sole benchmark of strength at sea, as they were vulnerable to air power.[29] Lacking air cover or effective AAA, Mikawa's decision became one of priorities: Mikawa retired, believing the destruction of the American transports was not worth the risk Fletcher's aircraft imposed on his eight-ship Striking Force.

Half-efforts of this nature defined Japanese strategy and execution through mid-October. As Bergerud commented, the Japanese had two broad choices in the Guadalcanal Campaign: they could "withdraw and fight the Allies much nearer Rabaul, or commit the Combined Fleet to a sustained engagement with nothing held back. As was so typical of the Japanese, Combined Fleet decided on a middle course that preserved the fleet for a battle that it must lose in the long run but also engaged enough imperial forces that the losses cut the nerve-endings out of the IJN and the JNAF."[30]

The Founding of the Cactus Air Force, August 10-25

Just as the Japanese declined to risk all available forces in the opening rounds of the Guadalcanal Campaign, American maritime strategy followed a similar course. Even before the Battle of Savo Island, on August 9, Fletcher made a critical decision to retire his carrier task

[29] William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (Tuscaloosa, AL: University of Alabama Press, 2009), 100.
[30] Bergerud, *Fire in the Sky*, 74.

force to refuel a day earlier than planned. With only *Hornet* standing in reserve at Pearl Harbor, Fletcher believed his carriers were the only force capable of holding off the Combined Fleet in the short-term.[31] With total operational strength reduced from 99 to 78 fighters, Fletcher retired beyond the combat radius of the Rabaul-based Bettys. Fortunately for the marines on Guadalcanal and Turner's transports, the 11th Air Fleet was devastated from two days of heavy losses and in no position to attack for a third consecutive day.

After several days of reconnaissance and light bombardment without a response, the Japanese Imperial Headquarters surmised the remaining Marine forces totaled about 2,000 men of low morale.[32] "Foreshadowing a fatal policy of piecemeal commitment," they concluded a small force would be able to recapture the field.[33] General Kiyonao Ichiki and his First Echelon of about 1,000 men departed Truk aboard fast destroyers in mid-August. Scheduled to land on Guadalcanal during the night of August 18-19 at Taivu Point, Ichiki and his men would then recapture the airfield. If unable, Ichiki would occupy a position nearby the field and attempt to prevent the completion of the airfield. Ichiki's Second Echelon would also land at Taivu Point several days later with the Combined Fleet escorting.

While the Japanese moved forces to Guadalcanal, the Americans worked to complete the newly designated Henderson Field. Named in commemoration of Marine Major Lofton Henderson, a Marine squadron commander killed at Midway, the completion of the field was the key to long-term survival according to Maj Gen Alexander Vandegrift, commanding general of the 1st Marine Division.[34] About a week after the landing, destroyer transports arrived unopposed to unload the makings of an air base: ground crews, fuel, munitions, tools, and spare

[31] Lundstrom, *The First Team*, 80-81.
[32] Spector, *Eagle Against the Sun*, 196.
[33] Frank, *Guadalcanal*, 144.
[34] Frank, *Guadalcanal*, 127.

parts. After several additional delays, Marine fighters finally arrived on August 20. Greeted as heroes, the Marine aviators and their 31 aircraft—19 Wildcats and 12 SBDs—became the inaugural members of the Cactus Air Force (CAF).

As the first aircraft were landing at Henderson, Ichiki's First Echelon prepared for its assault on the eastern edge of the Marine perimeter. The ultimate objective was to secure the airfield, but Japanese strategists also believed the loss would constitute a psychological blow to the Allies as well. After the devastating defeat in the Battle of Savo Island, the Japanese believed a similar defeat on land would influence the Americans to sign a peace settlement ratifying Japan's conquests.[35] The marines would not be party to such a strategy.

After midnight on August 21, about 100 of Ichiki's men assaulted the Marine lines. Through brutal fighting, the marines held, eventually pushing the Japanese soldiers back with heavy fire support from artillery and mortars. At dawn, another Marine battalion moved inland and encircled the Japanese coastal position. Unwilling to surrender, almost 800 of Ichiki's First Echelon died in the first ground assault on Henderson Field, including Ichiki, at the cost of 44 dead and 71 wounded marines.

Designed to deliver a psychological blow, the Battle of Tenaru River, as it was officially labeled, achieved just that, although it was the marines who achieved a physical and a psychological victory. In a letter to Marine Corps leadership, Vandegrift commented, "I have never heard or read of this kind of fighting. These people refuse to surrender. The wounded wait until men come up to examine them…and blow themselves and the other fellow to pieces with a hand grenade."[36] Just as the Zero had acquired a certain mystique in the air, so too had the Japanese soldier established an aura of invincibility on the ground. But as Frank concluded,

[35] Frank, *Guadalcanal*, 141.
[36] A.A. Vandegrift and Robert B. Asprey, *Once a Marine* (New York: W.W. Norton and Company, Inc., 1964), 142.

from the Battle of Tenaru River on, the marines were amenable to this type of brutal, total warfare in the Pacific: "If the Japanese wanted to fight to the death with no quarter asked or given, the marines were ready to oblige them."[37]

As Vandegrift's men were completing their rout of Ichiki's First Echelon, the CAF took to the air for the first time on the morning of August 21. SBDs supported the Marine counterattack with observation and strafing missions, while Marine Wildcat pilots had their first run-in with 13 Tainan Zeros from Rabaul. The experienced Zero pilots managed to damage each of the four Wildcats they engaged, but all four survived. Although they scored no victories, the exchange was a moral victory: "The four pilots had encountered the dread Zeke and had been duly shot up, but their planes had brought them back."[38] Such was the reputation of the Japanese Zero that morale soared among the squadron of "tenderfoot marines," as did their confidence in the Wildcat—a theme that played out repeatedly over the skies of Guadalcanal.[39]

Whereas the Grumman F4F-4 Wildcat was less maneuverable than the Zero, its survivability provided a qualitative edge for the American aviators that flew it. As a result of its heavier weight, the Wildcat possessed an inferior top speed, turn rate, and climb rate when compared to the lighter Zero. Conversely, the Wildcat held advantages in armament and self-protection. It also featured six wing-mounted Browning .50-caliber machine guns with enough ammunition for almost 20 seconds of firing. In contrast, the Zero had only two 7.7mm machine guns and two 20mm cannons that proved largely ineffective in air-to-air combat due to a slower

[37] Frank, *Guadalcanal*, 157.
[38] Thomas G. Miller, Jr., *The Cactus Air Force*, special illustrated ed. (Reprint, Toronto, Canada: Bantam Books, 1987), 33.
[39] Frank, *Guadalcanal*, 162.

rate-of-fire and lower muzzle velocity.[40] Wildcat pilots also enjoyed armor plating around the cockpit and self-sealing fuel tanks, both of which the Zero lacked.

With each aircraft maintaining significant advantages in different areas, victory or defeat in the air was largely a result of the character of the engagement. As long as the CAF received enough warning from radar or the coast watchers, the Wildcat pilots could overcome their speed and maneuverability deficiencies by attacking the Zero from higher altitude. With an altitude advantage, the greener Americans were able to capitalize on their superior firepower and armament, bringing down a Zero with just a few hits. To bring down a Wildcat, Zero pilots had to score repeatedly, as the marines' first aerial encounter demonstrated.

As CAF Wildcats patrolled the skies, Tanaka's convoy carrying Ichiki's Second Echelon and three carriers of the Combined Fleet converged on Guadalcanal. The 11th Air Fleet supported the convoy with large air raids to suppress the CAF on both August 22 and 23, but it was turned around by weather on both days. To preserve the element of surprise, Vice Admiral Chuichi Nagumo held the aircraft from the fleet carriers *Zuikaku* and *Shokaku* in reserve awaiting detection of the American carriers. Assuming no carriers had been detected by midday on August 24, the Japanese plan directed the light-carrier *Ryujo* to support Tanaka's convoy with additional strikes on Henderson Field. In respect to the element of surprise, Yamamoto's plan succeeded. On the evening of August 23, having no firm intelligence of any Japanese carriers south of Truk, Fletcher sent *Wasp* south to refuel.

Despite the absence of *Wasp*, the Battle of the Eastern Solomons was a clear American victory in terms of combat losses and operational objectives. Shortly after noon on August 24, having no intelligence on the American carriers, *Ryujo* executed its task to support Tanaka's convoy and launched 15 Zeros and 6 Kates to attack Henderson Field. Weather, once again,

[40] Peattie, *Sunburst,* 92.

frustrated another attack from the 11th Air Fleet. Sixteen CAF Wildcats and two newly arrived Army Air Force (AAF) P-400s intercepted the strike force from *Ryujo*, downing seven aircraft while preventing any effective bombing. In the process, the CAF lost three Wildcats and two pilots. Unfortunately for the *Ryjuo* aircrew, those that survived the ineffective raid returned to a sinking carrier and ditched.

As the CAF was defending Henderson Field from the *Ryujo* strike, the fleet carriers were preparing for the third major carrier battle of the war. Radar operators onboard *Saratoga* had detected *Ryujo's* strike package en route to Henderson Field, which after a morning of conflicting reports, finally convinced Fletcher to launch *Saratoga's* fighters against the light carrier. Mid-afternoon, a Japanese float plane spotted the American carriers, and although it was quickly shot down by *Enterprise* Wildcats, Nagumo's staff was able to piece together an approximate location. He immediately launched multiple strikes from the two fleet carriers. In the ensuing carrier action, *Saratoga* flyers sunk *Ryujo*, while Japanese fighters badly damaged *Enterprise*, which returned to Pearl Harbor. As the carrier battle came to a close at dusk, both Fletcher and Nagumo retired in separate directions. The majority of the Japanese surface vessels followed suit, but faulty intelligence of two burning American carriers and heavy CAF losses persuaded Mikawa to direct Tanaka's convoy onward to Guadalcanal.[41]

Due to heavy maneuvering the night prior, Tanaka's unescorted convoy could not make shore until midday, leaving it vulnerable to Allied air power. At dawn the CAF launched eight SBDs and eight Wildcats cued by a PBY that tracked the convoy through the night. Without air cover, the SBDs scored a direct hit on Tanaka's flagship. SBDs also struck one of the transports

[41] On the night of August 23, a strike group from *Saratoga* diverted into Guadalcanal after flying too far north in pursuit of Japanese carriers. The Japanese garrison saw these aircraft takeoff in the morning of August 24, but never saw them return. They incorrectly surmised that large numbers of CAF aircraft had been destroyed when, in actuality, the *Saratoga* aircraft were only returning to their ship. Frank, *Guadalcanal,* 187-189.

and added a near-miss on a second. Two hours later, three B-17s arrived and sunk an additional destroyer as it was taking on survivors. With Tanaka's only cruiser badly damaged and retiring north, two ships sunk, no air cover, and the two remaining transports still vulnerable to CAF SBDs, the Japanese cancelled the landing.

Despite blocking a Japanese convoy loaded with 1,500 troops of Ichiki's Second Echelon, the CAF was not done for the day. Before noon, the coast watchers radioed Henderson Field of another 21 inbound bombers. As the fighters returned back from the morning convoy attack, ground crews struggled to ready the aircraft for another mission. Although the Wildcats lacked enough time to get up to altitude and contest the Japanese raid, the warning enabled all but three aircraft to get back airborne again prior to the attack. Releasing from 27,000 feet, the Bettys dropped a tight pattern around the center of the airfield, but with all almost all aircraft airborne, the Japanese bombers inflicted only minimal damage to the field. Marine engineers had the field repaired by the time the aircraft landed.[42]

The evening of August 25 finally brought a pause in the action, and both sides took advantage of the calm to assess the situation. Nimitz understood the strategic importance of turning back the convoy but believed Fletcher could have done more.[43] Specifically, he felt Fletcher should have kept *Saratoga* closer to Guadalcanal to help the CAF punish the remaining surface ships.[44]

Despite Nimitz's concerns that Fletcher did not sufficiently exploit the tactical victory, the Japanese still absorbed unsustainable losses. Attrition among the JNAF soared to 26 percent of the 287 aircraft available on the morning of August 24. Losses in aerial combat were relatively equal, but once again, naval AAA decimated the Japanese attackers. Although the

[42] Miller, *The Cactus Air Force*, 61.
[43] Lundstrom, *The First Team,* 162.
[44] Lundstrom, *The First Tea*m, 162.

AAA could not stop a dive-bomber or torpedo-plane from reaching its release point, Navy gunners often prevented clean run-ins and made accurate attacks prohibitively costly for the aircrew. Furthermore, of the 150 Japanese aircrew shot down or forced to ditch during the two-day period, only 43 were ever recovered. In contrast, the Americans lost 25 aircraft during the two-day period with most aircrew recovered. In this respect, the physical damage followed a familiar pattern: both navies scored some hits, but the Japanese suffered greater aircrew attrition.

Beyond a physical assessment of the battle, there was a significant moral component. Once again, "The Imperial Navy had come out in force but it neither crushed the American carriers nor secured the safe passage of the reinforcement convoy."[45] If the losses of *Ryujo*, two ships, 75 aircraft, and 107 aircrew were not bad enough, the Japanese had nothing to show for it aside from a damaged American carrier, 25 aircraft, and 90 total American casualties. In sharp contrast to Japanese operational objectives, August closed with Guadalcanal securely in American hands, Henderson Field fully operational, and the CAF beginning to exploit localized air superiority around Guadalcanal.

Operation Ka, August 26 to September 14

In his analysis of Japanese strategy, Frank concluded that the whole of Japanese operations surrounding the movement of Ichiki's First and Second Echelons to Guadalcanal lacked a "coherent set of objectives" and was "deficient in coordination."[46] Yamamoto failed to establish clear priorities for the Combined Fleet, Nagumo was hesitant to risk his carriers in a decisive battle, and the coordination between the IJN and the Japanese Army was insufficient. Rather than seriously address any of these three deficiencies, the Japanese simply allocated more forces and continued down a costly "middle course": they failed to commit to a decisive battle,

[45] Frank, *Guadalcanal*, 193.
[46] Frank, *Guadalcanal*, 193.

yet knowingly lacked the resources to win a long-term war of attrition.[47] In general, the Japanese strategy over the next three weeks was more of the same, with only minor tactical and operational differences.

In the air, the Japanese still believed they could overcome the CAF in a war of attrition and developed the necessary plans. On August 29, Rabaul had 88 aircraft on hand, of which only 44 were operational, compared to 160 aircraft assigned in July. Recognizing the critical shortage, IJN headquarters developed a plan to bring Rabaul's strength up to 236 aircraft by September 20, including 93 long-range Zeros and 81 Bettys. The Japanese also recognized the importance of constructing an airfield closer to Guadalcanal. On September 8, IJN headquarters authorized the construction of Buin airstrip on the south-eastern tip of Bougainville.

Unfortunately for the Japanese, neither of these endeavors proved fully executable. Due to poor weather and poor management, construction at Buin took significantly longer than expected. At Rabaul, the "Japanese discovered, as the Americans had, that it was much easier to fly in pilots and planes than to forward the necessary ground crews, and, without mechanical nurturing, aircraft serviceability plummeted on the crude island bases."[48] With aircrew and aircraft shortages hindering Japanese strategy, the Americans proved capable of matching the limited JNAF buildup.

Between August 26 and September 14, the Japanese conducted 14 air raids on 11 different days. Although Rabaul planned raids on all 20 days in this time period, weather prevented the 11th Air Fleet from completing a raid on nine days. On two additional raids, weather obscured Henderson Field and prevented effective bombing. Of the 14 raids that reached Guadalcanal, four were medium-size raids consisting of 17-18 bombers with Zero

[47] Bergerud, *Fire in the Sky*, 74.
[48] Frank, *Guadalcanal*, 198.

escorts, six were larger raids consisting of at least 25 bombers plus escorts, two were reconnaissance missions, and one was a pure fighter-sweep. During this period, the Japanese flew 437 aircraft and 1,825 aircrew over Guadalcanal. Overall, air combat cost the Japanese 51 aircraft and over 160 aircrew, 12 percent and 9 percent attrition respectively. Operational losses would add to those numbers greatly, as would the routine bombing of Rabaul and Buka by the B-17s assigned to MacArthur and Rear Admiral John S. McCain, Commander Air South Pacific (COMAIRSOPAC).

More problematic for the Japanese was how little they accomplished through their air raids, even in good weather. Coast watchers and radar provided sufficient early warning such that the Wildcats had enough time to engage the Japanese from altitude on 13 of 14 raids. Focusing on the bombers, the CAF downed 24 Bettys, damaged two to three times that number, and often prevented the bomber crews from flying an effective bomb-run. As a result, on the 11 raids with bombers, the Bettys only destroyed eight aircraft on the ground, and any airfield damage they did achieve was often quickly repaired by Marine Corps and Navy engineers. In short, the Japanese were not causing enough damage for the losses they were absorbing.

The Japanese were not the only ones absorbing heavy attrition, however. Even with the Wildcats often possessing the advantage of altitude, the Japanese downed 18 of the 180 intercepting CAF fighters, while total CAF attrition from all losses was 26 percent of the force.[49] As radio intelligence and aerial surveillance suggested the Japanese buildup of aircraft, ships, and men would continue, commanders accurately predicted American attrition would remain high for the foreseeable future. But if properly resourced, McCain believed Cactus could become "a sinkhole for enemy air power."[50]

[49] Frank, *Guadalcanal*, 214.
[50] Quoted in Frank, *Guadalcanal*, 214.

Although officials in Washington D.C. argued allocating no additional resources, Nimitz, MacArthur, and McCain supported Cactus as much as their conflicting operations would allow. The Marine Corps and the Navy continued to support Henderson Field with additional aircraft and aircrew. At the same time, naval, AAF, and Marine Corps transports ensured the field was adequately supplied for air operations, although Cactus rarely possessed anything beyond a day or two of supplies in any critical area. In this manner, aircraft and aircrew trickled into Cactus, always ensuring there were just enough Wildcats to contest the JNAF, just enough SBDs to exploit daytime air superiority within, just enough resources and ground crews to keep the CAF flying, and just enough marines to defend the field.

One of the most critical reinforcements arrived on September 1: almost 400 men of a naval construction brigade. Commonly referred to as SeaBees, the engineers began work on a second airstrip, Fighter 1, a mile southeast of the original field. Completed in one week, Fighter 1 was all that kept the CAF operational later in the campaign after a devastating night bombardment by two Japanese battleships. Beyond the efforts to construct a second airstrip, the SeaBees were vital in repairing damage to Henderson Field. After the war, one Japanese officer commented that the Japanese would have won the campaign had they possessed one-fifth the airfield-construction capability of the Americans.[51] Miller summarized it best when he quipped, "the major Japanese problem was their lack of bulldozers, not fighter planes."[52]

As engineers and ground crews kept the CAF operational through routine Japanese bombardment, the Japanese Army developed new plans to seize Henderson Field by force. Planning for Operation Ka began in mid-August, and included the movement of an entire infantry brigade under the command of Major General Kiyotaki Kawaguchi. After learning of

[51] Frank, *Guadalcanal*, 612.
[52] Miller, *The Cactus Air Force*, 211.

both Ichiki's failure on Guadalcanal and the blocking of Tanaka's transports, 17th Army Headquarters directed Kawaguchi to rush an advance force of about 600 men to Guadalcanal aboard destroyers. They would form a beachhead on the island, bolster any of Ichiki's surviving forces, and await the arrival of Kawaguchi's main body.

Due to a fuel shortage in the destroyer division tasked with moving Kawaguchi's advance team to Guadalcanal, the destroyers were unable to make the trip at full-speed. As a result they approached the island before dark on August 28, presenting an immediate target for the CAF. After detecting the convoy on a routine search, SBDs cued additional CAF fighters to the convoy. During daylight and lacking effective air cover or AAA, SBDs quickly sunk the flagship *Asagiri* and then damaged two additional destroyers, leaving only one of four unscathed. The three remaining destroyers limped back to Shortland. Once again, the CAF had turned around a convoy at the cost of one SBD, driving the 17th Army's Chief of Staff to contemplate giving up any further efforts to retake Guadalcanal as a result of American air superiority.[53]

Despite the Chief of Staff's concerns, many others believed night destroyer runs were still the answer. On August 29, the Japanese attempted to transport personnel to Guadalcanal in a manner the Americans nicknamed the "Tokyo Express." When fully fueled, IJN destroyers proved effective at delivering about 150 infantry or 30-40 tons of light supplies per ship under complete cover of darkness. The "Rat Transportation" system, as it was called by the Japanese, quickly became the backbone of the Japanese logistical plan, responsible for moving most of Kawaguchi's 6,200 men. Even when the CAF detected the convoys, the CAF was largely incapable of engaging the fast-moving destroyers at night. Periodically, the CAF achieved some limited damage, but often it came at the expense of heavy operational losses. The destroyers, however, were unable to deliver heavy equipment or artillery which was problematic for the

[53] Frank, *Guadalcanal*, 200.

Japanese. Ichiki suffered from a lack of firepower in August, and Kawaguchi believed it was critical for his September offensive as well. Accordingly, he elected to transport about 1,000 of his troops and most of his heavy supplies by barge, just as the Americans were looking for new opportunities to exploit daytime air superiority around Guadalcanal.

As the campaign moved into its second month, Nimitz sought out aggressive commanders willing to "accept the risk of punishment" to "inflict heavy losses."[54] Marine Corps Brigadier General Roy Geiger certainly fit Nimitz's criteria. After arriving at Henderson Field in early September as Commander Air Cactus, he immediately searched for additional opportunities to exploit daytime air superiority around Guadalcanal. One of his first orders was to attack Kawaguchi's barges as they moved toward Guadalcanal by night.

After two days of incessant bombing and strafing by CAF fighters, Kawaguchi's barges attempted the final leg of their journey on the night of September 4-5. After a delayed departure, damage incurred during the previous CAF attacks further slowed progress. The movement was supposed to be completed at dark, and as such, the JNAF provided no air cover.[55] But at dawn on September 5, the unescorted barges were still at sea and made easy targets. For over an hour, CAF fighters attacked the barges, and only about 150 of the 1,000 Japanese soldiers made it to Guadalcanal as scheduled. Although Japanese destroyers recovered many of the survivors, most were not available for the upcoming assault, nor was the heavy equipment the barges carried.

After arriving on Guadalcanal, Kawaguchi received the remainder of his brigade and prepared for the assault on Cactus. According to Kawaguchi's superiors, the marines had approximately 2,000 men defending the perimeter; actual Marine strength was over 12,000.[56] Absent accurate intelligence on the Americans, Kawaguchi's biggest concern was the CAF. To

[54] Frank, *Guadalcanal*, 204.
[55] Frank, *Guadalcanal*, 213.
[56] Frank, *Guadalcanal*, 218.

preserve surprise and avoid further bombardment, he developed an elaborate attack plan that began with a lengthy jungle march and ended in synchronized, parallel assaults on the night of September 12-13. Difficulties in jungle marching, however, and poor coordination with the IJN jeopardized his complex plan. The JNAF never received word that Kawaguchi had slipped the offensive 24 hours, and in typical IJN fashion, Nagumo's carriers remained safely out of action awaiting an appearance by the American carriers.

Increasing Japanese troop strength, intelligence of an impending Japanese assault, and the reports of native scouts all suggested to Vandegrift an assault was imminent; rather than wait, he seized the initiative. Early on September 8, two destroyer transports delivered Lt. Col. Merritt Edson and his 1st Raider Battalion behind the Japanese lines at Taivu Point. Gone by dark, the marines killed 26 Japanese and sabotaged most of Kawaguchi's supplies, including four 75mm guns, radios, ammunition, food, and medical supplies. From captured documents, Vandegrift's staff approximated Japanese strength closely at 4,000 men and accurately predicted the main line of approach, a ridge just one mile south of the main airfield.

Shortly after midnight on the night of September 12-13, Kawaguchi's battalions began attacking the marine perimeter, thus beginning the Battle of Edson's Ridge. As a result of the overly-complex plan, most of the 2,500 men arrived late to their assembly areas and then became lost in the initial assault. Rather than driving into the marine perimeter in a coordinated assault, "Units became lost; lost units became scattered; scattered units became intermingled. Control slipped away…and it became a struggle of captains, lieutenants, sergeants, and privates against a few marines and a mass of jungle."[57] From the American perspective, these random attacks appeared to be an initial probing of the lines. Vandegrift, Geiger, and Edson all expected the Japanese to return in strength the following night. Just after dark on the night of September 13-

[57] Frank, *Guadalcanal*, 231.

14, the Japanese attacked again with better coordination. Supported by heavy artillery and mortar fire, three of Edson's companies held the line against two full Japanese battalions through a night of brutal fighting, much of it hand-to-hand. At dawn, AAF P-400s and P-39s added to the American firepower advantage, repeatedly strafing the Japanese lines. By mid-morning the threat to the airfield was over.

In the end, the combination of marine leadership and "obdurate resistance," supported by artillery and air power, neutralized the Japanese assault. In the two-day ground battle, 111 marines were killed and another 283 wounded; by contrast, the Japanese lost about 800 dead and over 500 wounded. Back in Rabaul, 17th Army Headquarters attributed the defeat to the loss of provisions at Taivu Point, the barge-movement, the difficulty of jungle movement and communication, poor maps, and American firepower. To that list, the Imperial General Headquarters added American air superiority around Guadalcanal and the "mismatch of pitting Japanese swords and bayonets against a prepared position." More bluntly, one of Yamamoto's staff officers commented "The army has been used to fighting the Chinese."[58]

On the American side, the credit for victory must be shared. Edson's marines absorbed the weight of two Japanese battalions and held. Additionally, without the successful effort of his Raiders on September 8, Vandegrift would not have had such complete intelligence for the upcoming battle. Likewise, the forward observers and the gunners provided critical support during the night while the CAF was grounded. In addition to destroying or isolating almost a quarter of Kawaguchi's strength on the barges, the CAF forced Kawaguchi to accept a perilous five-day jungle march, imposed a night logistical strategy on the IJN that prevented the delivery of heavy supplies, deterred Nagumo's carriers from joining the battle, and ensured the USN could resupply Cactus by day. All of these effects were the manifestation of daytime air

[58] Quoted in Frank, *Guadalcanal*, 244-245.

superiority around Guadalcanal, and ultimately, it ensured the marines enjoyed a firepower advantage over the Japanese Army at whichever point-of-attack Kawaguchi selected.

Despite the American victory at the Battle of Edson's Ridge, it was difficult for commanders in the Pacific to remain in high spirits for more than 24 hours. On September 15, a Japanese submarine fired a spread of torpedoes at *Wasp*, two of which struck the carrier and led to her sinking later that day. A third torpedo missed *Wasp* and struck *North Carolina*, causing damage that necessitated a stint in dry-dock, thereby removing one of only three new battleships during a critical period in the campaign. With *Enterprise* damaged from the Battle of the Eastern Solomons, only *Hornet* remained in the Pacific to face up to six Japanese carriers.

Operation Ka Part 2, September 15 to October 26

After hearing of Kawaguchi's defeat, both the Japanese Army and the Naval General Staff came to the realization that this was not just a hastily deployed contingent of 2,000 marines of low morale. Rather, Guadalcanal represented the chosen site of the major American counter-offensive, the same offensive many Japanese strategists did not expect until 1943. As a result, both services finally accepted the offensive in the Southern Solomons represented an "all-out" attack, and might evolve into "the decisive battle of the war."[59]

Together, the two branches coordinated on a new scheme of attack set for mid-October, also labeled Operation Ka. With the IJN providing transport, the Army committed the main body of the 2nd Infantry (Sendai) Division and a part of the 38th Infantry Division: 17,500 men plus almost 200 guns. The plan called for support from Buin airstrip, scheduled to open at the end of September, and for more intensive bombardment by IJN surface ships. Perhaps most importantly, the combined plan scuttled offensive operations to take Port Moresby, a campaign which had competed with the Guadalcanal Campaign for limited resources.

[59] Frank, *Guadalcanal*, 252.

Following the Battle of Edson's Ridge, weather prevented Rabaul from launching any strikes against Guadalcanal for almost two weeks, allowing both sides to reinforce and reorganize. As of September 22, Geiger had 86 aircraft on Cactus of the following types:

Unit	Total Committed (Aug 20-Sep 21)	Strength on Sep 22	Total Losses (Aug 20-Sep21)	One month attrition
VMF-223, -224, VF-5	86 F4F-4 Wildcats	43	43	50%
VMSB-232, -231, Flight 300, VS-3	42 SBD-3s	27	15	36%
67 FS	17 P-400 Airacobras	9	8	47%
VT-8	8 TBF-1s	8	0	0%
Totals	153	87	66	43%

Table 1: Cactus Air Force strength and attrition, August 20 to September 21[60]

On September 21, Rear Admiral Aubrey Fitch took over for McCain as COMAIRSOPAC. At rear echelon bases, he also possessed 50 large bombers and about 90 fighters of mixed types.[61] Lastly, Fitch had about 100 fighters inbound on Navy transports, while the AAF had another 30 P-39s and 15 of the new P-38 Lightning fighters inbound. For the next few months, this was all Fitch had to work with to support Cactus' appetite for aircraft, which was growing steadily to the concern of commanders across the Pacific.[62]

As Fitch reinforced the CAF, the Japanese were rebuilding their strength at Rabaul. Over the last two weeks in September, IJN Headquarters reinforced the 11th Air Fleet at Rabaul with 93 additional aircraft. This brought overall numbers up to 156 operational aircraft as of September 24, including 62 Bettys and 48 long-range Zeros.[63] The IJN also had 29 short-range Zeros ready to deploy to Buin when the airfield became operational.

While the weather prevented significant air activity from Rabaul, the Tokyo Express continued to support the immense logistical requirements for Operation Ka under increasing

[60] Chart and data from Lundstsrom, *The First Team*, 238.
[61] Lundstrom, *The First Team*, 239.
[62] Lundstrom, *The First Team*, 239.
[63] Lundstrom, *The First Team*, 242.

pressure from the CAF. Although the CAF failed to sink any Japanese ships at night, the constant harassment proved effective in other ways. When attacked, the Japanese ships had to maneuver, thereby losing valuable time. Due to CAF proficiency during the day, the destroyers had to be outside the SBD's combat radius come dawn. As the soldiers typically disembarked first, this often forced the ships to depart without fully unloading their supplies, to include food and medicine. And even when supplies were unloaded, CAF SBDs and P-400s punished the Japanese supply lines by day. As a result, Guadalcanal earned the nickname of "Starvation Island" among the Japanese soldiers. Whereas the lack of ammunition and artillery had cost Kawaguchi and Ichiki before, now it was the lack of food and medical supplies that was ruining the Japanese Army.[64]

With clear weather and a full moon, the danger to the destroyers increased exponentially toward the end of September, driving changes in the logistical plan. For the last week in September, the Japanese cancelled the "Rat Transportation" but devised another method to meet the Army's logistical requirements called "Ant Transportation." Whereas "Rat Transportation" consisted of fast destroyer runs, "Ant Transportation" consisted of slower, heavier transports unable to make the run completely at night. The Japanese also augmented "Ant Transportation" with the seaplane carrier *Nisshin*. It was riskier than "Rat Transportation," but it was the only way to land the necessary heavy equipment to match American firepower. For "Ant Transportation" to be successful, the JNAF had to suppress the CAF during the mornings and evenings when the slower transports were still within the SBD's combat radius. Accordingly, the Combined Fleet was tasked with providing offensive support for Operation Ka with the CAF as its primary objective; destruction of the American fleet was a secondary objective.

[64] As one example of the "indescribably wretched" conditions, in late September, over 1,000 Japanese were laid up in makeshift hospitals because of malnutrition, malaria, and dysentery. Frank, *Guadalcanal*, 261.

Just as the CAF was enjoying the improved weather at night, the 11th Air Fleet reveled in the opportunity to return en masse to Guadalcanal on September 27. Exhibiting new tactics that combined aspects of both close and detached escort, 17 Bettys with two waves of 38 Zeros navigated their way to Cactus where they met 35 Wildcats. The advance fighters failed to engage the Wildcats successfully, while the Zeros flying close escort became separated from the Bettys by about two minutes. In that short time span, the Marine and Navy pilots "had a field day," downing three Bettys and damaging 11 more.[65] The CAF lost no aircraft, although the Bettys did destroy three aircraft on the ground. The JNAF was back the next day with an even larger formation, 27 Bettys and 42 Zeros, but it suffered even greater attrition. Thirty-four Wildcats downed seven Bettys, damaged almost all of the remaining bombers, and badly damaged four Zeros. In return, the Bettys achieved light damage to the airfield and downed one SBD. In just two days, the Wildcats had one again devastated the JNAF's bomber force. Of the 62 Bettys on hand at Rabaul, ten had been lost and over twenty more were badly damaged. Another change of tactics was in order.

On September 29, 33 Wildcats took off from Henderson Field to challenge nine Bettys and 27 Zeros; but around 60 miles out the Bettys turned around and returned home, leaving the Wildcats and Zeros to fight it out. Realizing the Wildcats often avoided combat with the Zeros and recognizing the Bettys rarely inflicted significant damage, the JNAF used the Bettys as bait to force aerial combat between the Zeros and Wildcats.[66] Despite the massive dogfight, only two Zeros and one Wildcat were shot down. The tactic worked better on October 2 when Zero pilots downed eight total aircraft, although much of the success was due to a late coast watcher

[65] Frank, *Guadalcanal*, 272.

[66] The IJN had always recognized the need for timely weather data, estimates of Allied strength, and damage assessment. In late September, it finally deployed Lt. Cdr. Mitsui Kenji and ten communication specialists to Mount Austen, south of Henderson Field. From there, Kenji and his men reported back to Rabaul, keeping them apprised of critical airfield information. Lundstrom, *The First Team*, 243.

warning. On October 3, the Japanese tried the same tactic a third straight day and suffered. Expecting the decoy maneuver, 29 Wildcat pilots climbed higher than usual and then ambushed 27 Zeros closer to the field, destroying eight and damaging three more.[67] Marine gunners downed two additional Zeros with AAA; one Wildcat pilot bailed out of his aircraft. In one week, the 11th Air Fleet lost 14 of its 48 long-range Zeros, 30 percent attrition, and had approximately the same number sitting on the ramp badly damaged. Like their bomber counterparts earlier in the week, the Zero pilots stood down to assess the situation.

As the 11th Air Fleet recovered from a week of troubling losses, the Tokyo Express became the center of attention once more. Through the first week of October, the runs were largely successful. On several nights, weather and lack of moonlight prevented a successful engagement altogether, and CAF operational losses during this period were high. Periodically, the CAF damaged a destroyer and forced it to turn around, but more often CAF interference was unable to prevent the destroyer runs. As before, the nightly harassment often did prevent the destroyers from fully unloading their cargo. The "Ant Transportation" system was not as successful, however. CAF harassment drove periodic cancellations of the slower transportation system, contributing to additional logistical shortages. Fearful of another firepower advantage at the point of attack, Yamamoto delayed the assault until October 15.

As the Japanese increased their forces on the island, Vandegrift once again sent his men on the offensive. On October 6, he committed multiple marine regiments west of Cactus in an attempt to capture and destroy the Japanese supply base near the mouth of the Matanikau River, about two miles west of the perimeter. The three-day operation cost the marines 65 dead and 125 wounded, but the effects were far greater than they realized at the time. As Frank noted, the assembly area and artillery positions on the east bank of the Matanikau were the "very crux of

[67] Miller, *The Cactus Air Force*, 109.

the operations plan for the October offensive."[68] In addition, the marines, supported by heavy artillery and air power, killed at least 690 Japanese soldiers, decimating the 4th Infantry Regiment just a week before the major Japanese offensive.

On October 8, the Japanese completed Buin and deployed 15 short-range Zeros to the crude airstrip in order to support a major "Ant Transportation" run. After half of the Zeros became operational losses on landing, Japanese floatplanes of R-Area Air Force augmented the remaining Zeros against 22 CAF fighters as *Nisshin* steamed toward Guadalcanal. The CAF scored no hits, but downed all of the floatplane escorts at the cost of two CAF fighters. This same episode played out each of the following days: CAF fighters detected the convoys, attacked them with multiple waves, inflicted only light damage through unimpressive bombing, but downed all escorting floatplanes in the process.[69] As a result, R-Area Air Force had zero aircraft remaining by October 11.

Created in late August, R-Area Air Force was an observation and reconnaissance seaplane unit designed to make up for the lack of land bases in the Southern Solomons.[70] It was centrally based out of Shortland Harbor, a common assembly area for barge transports and army units awaiting transport to Guadalcanal, but also maintained a forward presence further south. As of mid-September, R-Area Air Force had 30 operational aircraft, including 11 float Zeros to provide token defense of the forward bases and airborne floatplanes.[71] But as the "Ant Transportation" system placed more ships within the daytime combat radius of the CAF, and with Buin lacking sufficient capacity to defend the convoys, R-Area Air Force assumed front-line escort duties. Unsurprisingly, the floatplanes performed poorly in aerial combat due to the

[68] Frank, *Guadalcanal*, 290.
[69] Frank, *Guadalcanal*, 290.
[70] Lundstrom, *The First Team*, 192.
[71] Lundstrom, *The First Team*, 192.

three massive floats. Although the depletion of this unit went largely unnoticed, the loss of reconnaissance and surveillance in the Southern Solomons had an immediate impact on operations near Guadalcanal, beginning with the Battle of Cape Esperance.

In many respects, the Battle of Cape Esperance was the opposite of the Battle of Savo Island in August. On the night of October 11-12, the two surface fleets sparred again as both sides were attempting to screen for an inbound convoy. On the Japanese side, the night witnessed a singularly important Tokyo Express run with two seaplane carriers plus seven destroyers. The IJN tasked an escort force of three cruisers and two destroyers to ensure the safe transit of the resupply convoy and then bombard Henderson Field.

On the American side, Rear Admiral Norman Scott commanded two heavy cruisers, two light cruisers, plus five destroyers and had multiple responsibilities. Scott was tasked to protect inbound American transports carrying about 3,000 Army soldiers and to destroy any forces attempting to bombard Henderson Field. Indirectly, Scott was also screening for *Hornet*, the single remaining American carrier, which was tasked with providing air cover for Turner's transports. Frank highlighted that implicit in Scott's mission was the requirement to develop suitable night doctrine for a mixed cruiser-destroyer force, something the USN lacked, and to avenge its defeat at Savo Island two months earlier.[72]

Shortly before midnight on October 11, Scott's task force surprised the Japanese escort force as it was making its way past Cape Esperance to bombard Henderson Field; the end result was an embarrassing night defeat for the Japanese. After making a turn back to the southwest a few minutes earlier, Scott "crossed the T," arriving atop the Japanese column, and opened fire.[73] Unfortunately, three of his destroyers misunderstood the turn and ended up out of position, two

[72] Frank, *Guadalcanal*, 293.

[73] In surface warfare, "crossing the T" represents the pinnacle of strategy and execution as it allows one side to bring all of its guns to bear against only the forward facing guns of the adversary.

of them halfway in between Scott's column and the lead Japanese elements. Scott skillfully overcame the fog and friction of night surface warfare to inflict heavy damage on the Japanese ships. In the course of the battle, Scott's task force sank one heavy cruiser while damaging several more surface ships. In return, the Japanese damaged two cruisers and sank one destroyer.

As dawn approached, the commander of the *Nisshin* tasked four of his escorting destroyers to support the damaged surface ships as they attempted to retire from the area. After sunrise, CAF fighters detected the two groups of ships and began attacking in multiple waves. With R-Area Air Force out of commission and inclement weather preventing any support from Rabaul, the CAF attacked the unescorted ships throughout the day, sinking one additional destroyer and forcing the Japanese to scuttle a second.

Although the USN hailed the battle as a great American victory—appropriately when one considers the proficiency of the Japanese at night surface action—it was also a missed opportunity for the Americans at the operational level of war. Much like the Americans at Savo Island, the Japanese were complacent entering the battle area and were surprised by the American force.[74] However, like Mikawa after Savo Island, Scott failed to target the resupply convoy just miles away.[75] After the confusion of the battle, and with two of his cruisers damaged, Scott was hesitant to pursue another night battle against a competent destroyer force. Perhaps wisely, Scott directed his forces to retire, leaving one junior officer on board *Helena* to comment, "Cape Esperance was a three-sided battle in which chance was the major winner."[76] Had Scott accomplished the turn ten minutes later, the geometry of the battle would have been reversed and the Japanese would have crossed Scott's T; but as Frank noted, "Scott deserved to win because he entered the arena girded for battle, while Goto [Commander, Cruiser Division 6]

[74] Frank, *Guadalcanal*, 310.
[75] Lundstrom, *The First Team*, 296.
[76] Charles Cook, USN. Quoted in Frank*, Guadalcanal,* 311.

earned his fate with his neglect."[77] Based on an optimistic account of the number of Japanese ships sunk, American spirits soared. Once again, the elation was short-lived.

On October 13, as Turner's convoy was unloading the men and supplies, the 11th Air Fleet returned to Guadalcanal to suppress the CAF for another large Tokyo Express run. After evading coast watcher detection, the first raid arrived overhead shortly before noon. With clear weather and insufficient time for the Wildcats to get to altitude, the aim of the 27 Bettys was flawless. The bombers put 13 holes in the main runway, damaged 12 aircraft on the ground, and ignited 5,000 gallons of precious aviation fuel. Furthermore, the JNAF accomplished all of this at the expense of one Betty and one Zero. Perfectly spaced two hours later, a second air raid of 18 Bettys and 18 Zeros arrived while most of the Wildcats were on the ground refueling. Although 12 Marine Wildcats attempted to disrupt the raid, the escorting Zeros successfully deterred them, and the Bettys accomplished their bomb-runs unhindered, causing more damage to the field. With unimpeded bomb-runs and clear weather, the 45 Bettys subjected Cactus to the "worst bombing the island has experienced."[78] It would get worse.

As the next phase in a supremely orchestrated joint assault on Cactus, the Japanese Army began shelling the field just before dark. First, Lieutenant General Harukachi Hyakutake, commander of the 17th Army, unleashed his 15cm howitzers which continued all evening. Then shortly after 0130, as Marine Corps historian Robert Sherrod commented, "All hell broke loose."[79] For the next hour and a half, the two battleships *Kongo* and *Haruna* punished Henderson Field with almost 1,000 14-inch shells of various types in "one of the most

[77] Frank, *Guadalcanal*, 311.
[78] From Torpedo Squadron Eight's War Diary. Quoted in Miller, *The Cactus Air Force*, 121.
[79] Robert Sherrod, *History of Marine Corps Aviation in World War II* (Baltimore, MD: The Nautical & Aviation Publishing Co. of America, 1987), 99.

concentrated shellings in history."[80] Vandegrift later commented, "Until someone has experienced naval or artillery shelling or aerial bombardment, he cannot easily grasp a sensation compounded of frustration, helplessness, fear, and in the case of close hits, shock."[81]

At dawn on October 14, Vandegrift, Geiger, and the men on Guadalcanal emerged from their foxholes and "surveyed a wreckage exceeding anything they had imagined."[82] Forty-one men were dead, the main runway was a shambles, virtually all of the aviation gas burned, and the striking power of the CAF was decimated. Of 39 SBDs, only seven were flyable. Furthermore, none of the TBFs were flyable; but since most of the bombardment focused around the main runway area, Fighter 1 and the Wildcats fared better. Twenty-four of 42 Wildcats survived the night.

Despite "the bombardment," as it was forever known to those who lived through it, the CAF managed a few early search missions which quickly reported the presence of another large inbound convoy, consisting of multiple heavy transports. Vandegrift requested support from anyone who could help, but with *Hornet* refueling and unable to take on the Combined Fleet alone, and Scott's surface force limping back to Noumea, Cactus was largely on its own. Only Fitch had any help to provide. He immediately forwarded all available SBDs in his command to Guadalcanal and also sent 20 additional Wildcats. Additionally, he tasked surface ships to shuttle fuel to Cactus and orchestrated a joint Army and Marine Corps airlift operation as well.

In the afternoon, the first of two raids from Rabaul arrived overhead. After an errant coast watcher warning earlier in the morning, all available Wildcats were back on the ground refueling when the first raid arrived shortly after 1200. They targeted the main runway and the surrounding aircraft; and with clear weather and unopposed bomb-runs, the Bettys successfully

[80] Frank, *Guadalcanal*, 317.
[81] Vandegrift and Asprey, *Once a Marine*, 175.
[82] Sherrod, *History of Marine Corps Aviation*, 100.

struck their targets. Luckily for the CAF, there was nothing around the main runway left worth bombing. With the runway in ruins from "the bombardment," Geiger shifted all flight operations to Fighter 1. The second raid arrived an hour later, and the Wildcat pilots inflicted some much-needed vengeance for the previous night. They downed four Bettys, damaged another four, and prevented further significant damage to the field.

With Henderson Field safe from the air raids for the day, the CAF ineffectively shifted its attention to the inbound convoy. The first raid accomplished little, but cost the CAF two more fighters. Although shorthanded from horrendous non-combat losses over the previous week, six Buin-based Zeros intercepted the CAF on its second raid. They prevented the CAF from inflicting much damage to the convoy, downed one SBD, stayed on station as long as their fuel lasted, and subsequently ditched their aircraft as directed.[83]

Nightfall saw the arrival of Hyakutake's convoy of heavy transports, another major Tokyo Express run led by the *Nisshin*, and a second straight night of shelling for the inhabitants of Henderson Field. After depositing the transports, two heavy cruisers delivered about 750 eight-inch shells inside the perimeter in a thirty-minute bombardment. At dawn on October 15, Vandegrift, Geiger, and their men emerged to survey the damage which, once again, was extensive. Additionally, they could also see the presence of six heavy transports, audaciously anchored just 15 miles up the coast.

Although the transports had already arrived, Geiger immediately launched his aircraft to contest the Japanese as they unloaded the heavy supplies. In a rare occurrence, the Combined Fleet provided air cover over the unloading transports from the light carriers *Hiyo* and *Junyo*. All morning, ground crews scrambled to fix aircraft, and Geiger launched them as they became ready. By late morning, Geiger ended the piecemeal efforts due to excessive combat losses and

[83] Lundstrom, *The First Team*, 305.

organized a mass raid against the transports, inflicting significant damage. Fitch contributed nine B-17s from Espiritu Santo that sank another, and Geiger even added his personal Catalina to an afternoon raid after mechanics devised a method for it to employ torpedoes. Although the Catalina was holed repeatedly during the attack, it managed to score a hit against another transport. Through the rest of the afternoon, CAF fighters exploited gaps in Japanese fighter coverage to punish the transports and whittle away at landing craft and stock-piles on shore.[84]

At the end of the day, Vandegrift reported to Ghormley that, in his assessment, the Japanese transport operation was only a partial success. CAF fighters, with support from Fitch's B-17s, sunk three of six transports before they could fully unload their supplies. Additionally, pressure from the CAF influenced the convoy commander to withdraw early before all of the supplies could be unloaded.[85] Frank estimated almost all of the 4,500 soldiers reached land, but only two thirds of the supplies.[86]

The night of October 15-16 brought with it a third straight night of heavy naval bombardment by Japanese cruisers. The next morning, Geiger opened the day with just 27 operational aircraft; but ground crews classified another 16 as "repairable" and another 13 as requiring major overhaul.[87] All through the day, ground crews struggled to ready aircraft, refuel them from 55 gallon drums, and launched 58 sorties against the exposed supplies. *Hornet*, now within range of Guadalcanal, augmented the CAF strikes with 74 additional sorties. Although her presence encouraged repeated attacks by the JNAF, it also influenced the Japanese to cancel additional runs by the *Nisshin* and other ships that night.[88] Further adding to the shortfall, Vandegrift requested a naval bombardment of his own on the morning of 17 October against the

[84] View of Rear Admiral Tamotsu Takama, commander of the transport convoy. Frank, *Guadalcanal*, 323-324.
[85] Lundstrom, *The First Team*, 308.
[86] Frank, *Guadalcanal*, 324.
[87] Lundstrom, *The First Team*, 310.
[88] Frank, *Guadalcanal*, 328.

exposed supplies. To offset the losses, 17th Army demanded more runs by the three remaining heavy transports; due to the threat posed by the CAF and *Hornet*, the IJN agreed only to additional "Rat Transportation" runs.

The morning of October 18 saw a dramatic shakeup in South Pacific leadership. Concerned about Ghormley's defeatism and lack of resolve, Nimitz asked his senior staff if Ghormley was tough enough to face the coming crisis, if he could "inspire men to feats beyond their capability."[89] Unanimously, his staff answered "No." In his assessment, Frank acknowledged that a "precarious combination of responsibility without commensurate authority was thrust upon Ghormley, and that he never had more than a moderate means for an immoderate task"; but at the same time, Ghormley's defeatism had become infectious throughout his headquarters at Noumea and his relief was justified.[90]

Nimitz directed Halsey to assume the role of COMSOPAC. Halsey was well-known and admired throughout the Navy with a stubborn streak and a penchant for aggressive action. Within two days of assuming command, Halsey called a conference at Noumea to discuss the outlook for Guadalcanal. Vandegrift told him, "I can hold, but I've got to have more active support than I've been getting." After an impassioned plea by Turner that the USN was doing all it could, and losing warships in the process, Halsey calmly told Vandegrift, "All right. Go back. I'll promise you everything I've got."[91]

As Halsey was settling into his new command, Hyakutake and the 17th Army were struggling to navigate the dense jungles of Guadalcanal toward the Marine perimeter. Similar to Kawaguchi's plan, Hyakutake settled on a deep march through the jungle to avoid detection and aerial bombardment. On X-day, now the night of October 22-23, the 17th Army would conduct

[89] Frank, *Guadalcanal,* 333.
[90] Frank, *Guadalcanal*, 334.
[91] Sherrod, *History of Marine Corps Aviation*, 106.

a coordinated assault along three major axes east of Edson's Ridge. Hyakutake also planned a coastal assault into the Matanikau as a diversion the day prior. The main strike, however, would then come the following night by the Sendai Division south of Cactus.

On October 22, the day of the diversionary strike, the Sendai had been marching through the jungle for a full week with devastating effects on morale and strength. One soldier wrote in his diary, "I cannot any longer think of anything, the enemy, food, home, or even myself…[I am] only a spirit drifting toward an undefined, unknowable world."[92] In addition to suffering from malnourishment and disease, the soldiers of the Sendai also suffered from a lack of progress. Without effective navigation aids, reference points, or accurate patrol reports, the Japanese struggled to navigate the dense jungle. At one point, aircraft dropped overhead photographs, but "inexplicably, the photographs met with indifference" by Japanese commanders.[93]

Based on the lack of progress, Hyakutake slipped X-Day, the main assault, an additional 48 hours to the night of October 24-25; although the opening rounds of the Battle for Henderson Field, as it is formally called, began with the diversionary strikes into the Matanikau the evening prior. Lacking any information on the Sendai division, the coastal attack on afternoon of October 23 successfully diverted American attention to the Matanikau. Supported by Hyakutake's heavy guns, Japanese tanks and infantry advanced along the coast. Simultaneously, another Japanese regiment crossed the Matanikau River further upstream and attacked the marines from the south. With the support of heavy American firepower, the marines held through the first night, annihilating the attacking tank company. Taking the bait, the marines thinned the forces east of Edson's Ridge, the Sendai's objective, in order to strengthen the Matanikau area.

[92] Captain Jiro Katsumata, 2nd Infantry Division, left wing. Quoted in Frank, *Guadalcanal*, 346.
[93] Frank, *Guadalcanal*, 346.

In theory, the Sendai Division was ideally situated to exploit the weaker lines east of Edson's Ridge; but exhaustion and confusion, compounded by driving rain on the night of October 24-25, led to a disjointed, uncoordinated attack.[94] The right wing deviated to a course parallel to the American lines and completely missed the action. In contrast, the left wing attacked in force shortly after midnight, and Puller recognized his men were defending against "seasoned, well-disciplined troops."[95] Supported by heavy artillery and mortar fire through the night, Puller directed Army National Guardsmen to stabilize the lines. At dawn, the attacking Japanese retired into the jungle to prepare for another night assault. Although they had created a salient in the American perimeter, the Japanese soldiers failed to break through.

On the morning of October 25, as the two infantry forces rested for another night of battle, the action shifted back to the skies and seas surrounding Henderson Field. Morning searches detected more ships steaming toward Guadalcanal, which initiated the "most active day yet in the short, chaotic history" of the CAF.[96] Through the morning, four waves of Zeros circled the field; but with artillery raining down on the main runway, and Fighter 1 flooded from the previous night's rainstorm, the CAF was unable to offer any resistance. In late morning, during a lull in the Zero patrols, four Wildcat pilots managed to get airborne and strafed two destroyers, deterring them from their assigned morning bombardment of Cactus.

Shortly after noon, with the field now usable and the Zero escorts returning home, four SBDs "plastered the second of Mikawa's forces having the temerity to invade the waters around Guadalcanal during daylight."[97] This time the target was the light cruiser *Yura* and her five destroyer escorts. The CAF inflicted heavy damage to two ships and prevented another

[94] Frank, *Guadalcanal*, 353.
[95] Lt. Col. Lewis "Chesty" Puller. Quoted in Frank, *Guadalcanal*, 355.
[96] Miller, *The Cactus Air Force*, 146.
[97] Lundstrom, *The First Team*, 346.

bombardment of the field. Through the afternoon, the CAF defended against two air raids that inflicted minimal damage. By late afternoon, with the air raids over, the CAF returned its focus to the damaged *Yura.* After repeated attacks, a P-39 or a B-17 reignited uncontrollable fires which led two IJN destroyers to scuttle the ship after dark.

On land, the Japanese attacked again just after dark at both the Matanikau and east of Edson's Ridge. For reasons that Frank admitted were hard to understand, the Sendai's right wing missed the action for a second straight night.[98] As a result the Sendai's left wing attacked the reinforced Marine and Army positions alone, while absorbing the majority of artillery and mortar fire. At the Matanikau, the Japanese made some advances, but the marines rallied. By dawn, the battalion commander reported "the situation was in hand."[99] With the CAF now airborne and providing close air support, Hyakutake recognized both assaults had failed far short of their objectives and ended the attack by mid-morning on October 26.

With the Battle for Henderson Field over, the Japanese debated the reasons for yet another humiliating defeat. Through the four days of action, the Americans suffered 86 dead and 192 wounded. Conversely, the 1st Marine Division estimated Japanese dead at well over 2,000. Seventeenth Army blamed the lack of air cover, which reduced the available supplies, and the constant pressure to mount the attack by the IJN.[100] Naturally, the IJN blamed 17th Army, identifying: another gross underestimation of the impact of a jungle march; faulty assessment of the enemy disposition; and a "crowded list of leadership failures."[101] One regimental

[98] Colonel Shoji, commander of the Sendai Division's right wing, believed the Americans were flanking the Japanese position to the east and pivoted two of his three battalions to defend against the encirclement. The flanking maneuver was completely imaginary. His movement, however, prevented Shoji's right wing from being in a position to attack the American lines at nightfall. Frank, *Guadalcanal*, 362.
[99] Report from Major Odell Conoley, executive officer, 2nd Battalion, 7th Marine Regiment to Vandegrift. Quoted in Frank, *Guadalcanal*, 364.
[100] Frank, *Guadalcanal*, 365.
[101] Assessment of Commander Toshikazu Ohmae, Imperial Japanese Navy. Frank, *Guadalcanal*, 365.

commander of the Sendai managed to evade for several days inside the perimeter. Before taking his own life, he offered the following insight in his diary: "We must not overlook firepower."[102]

Following the Battle for Henderson Field, the scene shifted back to the sea as the two fleets prepared for the fourth major carrier battle of the war. On October 25, Nagumo's three carriers remained northwest of Guadalcanal by about 250 miles, avoiding the Battle for Henderson Field. One hundred miles closer, the Advance Force held with *Junyo*, the only carrier to contribute aircraft to the fight over Guadalcanal. There, both forces awaited news from Hyakutake. Once the 17th Army captured Henderson Field, the Advance Force would steam toward Guadalcanal to reinforce the victory and prevent American reinforcements.

The Battle of the Santa Cruz Islands began early on the morning of October 26, pitting four Japanese carriers, two heavy and two light, against two heavy American carriers in an engagement forced by Halsey. Rear Admiral Thomas Kinkaid's Task Force 61 was following Halsey's aggressive direction to sweep around north of the Santa Cruz Islands and engage the Japanese.[103] In retrospect, John Lundstrom believed Halsey's decision seemed less like the actions of an "aggressive commander eager to get at the enemy," and more like a "dangerous, almost foolhardy gesture."[104] Not only was Kinkaid at the far limits of American land-based air power, but Nagumo held both a quantitative edge in aircraft, 194 to 137, but according to Frank, he possessed a distinct qualitative edge as well.[105]

The action began early on the morning of October 26, about the same time Hyakutake was alerting the IJN to the failed ground assault. Before 0800, *Zuiho* was already out of action

[102] Colonel Furimiya, commander 29th Infantry Regiment. Quoted in Frank, *Guadalcanal*, 366.
[103] Lundstrom, *The First Team*, 353.
[104] Lundstrom, *The First Team*, 355.
[105] Frank highlighted that much of the *Enterprise's* Air Group 10 represent the first products of wartime training courses. The aircrews had been hurried through training and had yet to face battle. Although depleted by months of attrition, the Japanese carriers still boasted a significant number of experienced Japanese aviators. Frank, *Guadalcanal*, 373.

from two skillful SBD-scout crews, and both fleets had massive strike packages airborne. A little more than an hour later, the Japanese had launched a second wave and had 110 total aircraft airborne in three organized attack groups. In comparison, the Americans were late to get their aircraft airborne and were also "inferior in numbers, organization, and coordination."[106] Additionally, the Wildcats in defensive combat air patrols over the American Task Force struggled to intercept the Japanese strike packages due to inadequate intercept information. Through the multiple waves of Japanese attacks, both American carriers sustained heavy damage. On the Japanese side, *Shokaku* received multiple hits as well and retired, unable to conduct flight operations.

Between the two American carriers, *Hornet* was in far worse shape after the Japanese subjected it to a superbly coordinated attack. Although overall Japanese aircrew proficiency was in a marked decline, Kinkaid suggested the combined dive-bomber and torpedo-plane attack on *Hornet* was the most devastating of its type during the entire war.[107] The attack on *Enterprise* one hour later achieved some hits but was not as well executed. With a damaged forward elevator, *Enterprise* could only conduct limited flight operations. *Hornet*, however, was dead in the water. Although Kinkaid arranged a tow for her, he did not believe *Enterprise* could manage alone against the remaining Japanese carriers and retired, leaving *Hornet* to her fate. Over the next several hours, the Japanese repeatedly struck *Hornet* while American sailors fought bravely to save her absent any air cover. After a final hit late-afternoon, the captain ended rescue operations. Japanese warships finally sunk *Hornet* around 0130.

[106] Frank, *Guadalcanal*, 383.
[107] Frank, *Guadalcanal*, 402.

Conclusion

The Battle of the Santa Cruz Islands summarizes the state of the Guadalcanal Campaign in its entirety to this point. Although the Japanese periodically scored tactical victories, such as in the Battle of Savo Island, "the bombardment," and the Battle of Santa Cruz Islands, they failed to turn each into operational or strategic victories. In large part, they lacked the requisite will to apply the force needed to exploit the advantage gained. Through the Battle of Savo Island on the night of August 10-11, Mikawa secured night maritime superiority around Guadalcanal, but he promptly retired his fleet and missed an opportunity to crush Turner's transports.

On the night of October 13-14, after the vicious battleship shelling, the IJN was as close as it ever came to achieving daytime air superiority around Guadalcanal. Despite lobbing almost 1,000 14-inch shells inside the perimeter, the two battleships failed to target Fighter 1 and left 50 percent of the Wildcats intact. Then, in typical Japanese fashion, Nagumo sat back with his carriers in reserve rather than commit them to a decisive battle with the CAF's striking power all but eliminated. By mid-afternoon on October 14, the CAF was operational again. By mid-morning of October 15 the CAF had regained its striking power and was back to controlling and exploiting the skies around Guadalcanal, due to the heroic work of the ground crews and engineers who fixed the aircraft and the runways.

The Battle of the Santa Cruz Islands followed the same pattern. Although *Shokaku* and *Zuiho* were damaged and had to return home, Yamamoto still had *Zuikaku* and *Junyo* at his disposal. Furthermore, he knew unequivocally of the *Hornet's* demise and he had strong reports of heavy damage to all remaining American carriers.[108] Accurately summarizing the Japanese position, Lundstrom wrote, "Obviously Combined Fleet felt the U.S. carriers were no longer a

[108] Lundstrom highlighted that reports from Combined Fleet stated four American carriers had fought in the Battle of the Santa Cruz Islands and that all four were sunk, in addition to two American battleships. In reality, the *Hornet* sank, but the *Enterprise* was only damaged, albeit heavily. Lundstrom, *The First Team*, 453.

factor in the defense of Guadalcanal."[109] Yet on November 2, the "3rd Fleet effectively bowed out of the Guadalcanal Campaign" when the unhurt *Zuikaku* accompanied the two wounded carriers back to home waters for training.[110] Despite an overwhelming superiority in surface ships and a carrier advantage of two to zero, Yamamoto was unwilling to commit his carriers.[111]

A second major theme through the campaign was that regardless of who won any individual tactical battle, Japan consistently lost from an operational or strategic perspective. Despite some tactical victories, quite simply, the Japanese could not sustain this type of attrition warfare. They understood this, but inexplicably allowed the pattern to continue through the adoption of an unsustainable "middle course."[112]

Again, the Battle of the Santa Cruz Islands mirrors this theme. Nagumo began the day with 196 aircraft. By the end of the day, 97 of his fighters were destroyed with American AAA responsible for over half of the downed Kates and Vals.[113] In addition to 49 percent attrition in aircraft, Nagumo lost 70 of his 233 carrier aircrews, equating to 148 airmen. Attrition among the Val and Kate crews was particularly high, 50 percent and 31 percent respectively, including most of the squadron and section leaders. As Frank noted, the excellence of these men "would never be matched by their replacements."[114] Conversely, the Americans lost 81 aircraft, but only 24 airmen. As Lundstrom noted, "To achieve their decisive victory, the Japanese paid an appalling cost in men and planes, if not actually in ships."[115] But more problematic, the Japanese had *decided* nothing, at sea, on land, or in the air.

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[109] Lundstrom, *The First Team*, 454.
[110] Lundstrom, *The First Team*, 454.
[111] Lundstrom, *The First Team*, 454.
[112] Bergerud, *Fire in the Sky*, 74.
[113] Frank, *Guadalcanal*, 402.
[114] Frank, *Guadalcanal*, 401.
[115] Lundstrom, *The First Team*, 454.

At sea, the Japanese held the advantage in surface ships and possessed a carrier advantage, but they could not figure out how to neutralize CAF and exploit that advantage. On land, the Japanese Army had thousands of men on Guadalcanal, but they were starving, diseased, fatigued, and struggling to match American firepower. Finally, in the air, even with Buin operational, the JNAF was proving incapable of projecting air superiority over Guadalcanal.

As October came to a close, both sides recognized the growing importance of the Guadalcanal Campaign. From Halsey's perspective, there was only one major battle "330 miles west northwest of the Santa Cruz Islands," and he was willing to commit everything he had to ensure the success of the campaign.[116] As his aggressive, almost foolish, logic behind committing Kinkaid's Task Force at the Battle of the Santa Cruz Islands revealed, Halsey believed the carriers, and any other forces for that matter, had to fight in order to save the island.[117] In Tokyo, the Japanese Army was finally in agreement with the IJN that the "fighting in the Solomons was developing into *the* decisive battle between Japan and the United States."[118] They believed the IJN now held a decisive advantage at sea after the Battle of the Santa Cruz Islands, and they also believed Operation Ka in October had come tantalizingly close to success. In short, the attrition stage was over; it was time to decide the campaign and the war.

[116] Quoted in Spector, *Eagle Against the Sun*, 209.
[117] Lundstrom, *The First Team*, 355.
[118] Frank, *Guadalcanal*, 405.

Chapter 5

Decisive Warfare:
October 27 to November 15, 1942

As October came to a close, both sides arrived at the same conclusion: the Guadalcanal Campaign could very well decide the war. In terms of grand strategy, where the resources of a nation are directed "towards the attainment of the political objective," the victor of the Guadalcanal Campaign would likely determine the limited or unlimited character of the Pacific war for the foreseeable future.[1] On the Japanese side, Army and Navy officials still believed a Japanese victory, costing thousands of American lives, would deal a psychological blow to the Allies and convince them to settle.[2] In some respects, the Allies believed this as well. Through October the media bombarded Americans with pessimistic reports about Stalingrad, the loss of *Wasp*, the disaster at Savo Island, and the firing of Ghormley.[3] An Allied defeat might persuade the American population that islands such as Guadalcanal and Tulagi were not worth a prolonged, unlimited war with the Japanese, especially when there was so much work to be done in Europe. Conversely, an Allied victory at Guadalcanal would likely convince an American population, fueled by anger over the bombing of Pearl Harbor, that victory in the Pacific was possible over the long-term, perhaps even probable. With that much at stake, on October 24, President Roosevelt wrote to his Joint Chiefs, "My anxiety about the Southwest Pacific is to make sure every possible weapon gets into that area to hold Guadalcanal."[4]

Roosevelt understood that whoever controlled the Southern Solomons would accrue a distinct advantage at the strategic level of war. Referring back to Liddell Hart's notion of pure or

[1] B.H. Liddell Hart, *Strategy*, 2nd ed. (New York: Meridian Publishers, Inc., 1991), 322.
[2] Richard B. Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990), 141.
[3] Frank, *Guadalcanal*, 333-334 and 404.
[4] Quoted in Frank, *Guadalcanal*, 404-405.

military strategy, which focuses largely on theater-level logistics, Allied defensive or offensive operations in the South Pacific, Australia, New Guinea, or China depended directly on the maintenance of the sea lines of communication between the United States and Australia.[5] If the marines and soldiers held at Guadalcanal, the IJN would be unable to contest those sea lines of communication to serious effect. The Allies would be able to build up forces in the Pacific at their leisure.

If the Guadalcanal Campaign marked the grand strategic and strategic fault line along which the Pacific war would be decided, the battle over Henderson Field was clearly at its epicenter, something Mitchell foretold in *Winged Defense*. Based around his concept that control of the air would lead to control of the surface, Mitchell believed, "An island instead of being easily starved out, taken or destroyed by navies as was the case in the past, becomes tremendously strong because it cannot be gotten at by any land forces and, while supremacy of the air is maintained, cannot be taken by sea forces."[6] Both sides recognized this after three brutal months of attrition in the skies, on the seas, and in the jungles of Guadalcanal. As a result, the suppression or the sustainment of Henderson Field, and its fledgling Cactus Air Force, became the central focus at the operational level of war, upon which decisive action at the strategic and grand strategic levels would depend.

Preparations, October 27 to November 11

Through the first three months of the campaign, the CAF imposed unsustainable costs on both the Japanese Army and the IJN, while also forcing them to adopt costly alternative strategies. Specifically, 17th Army commanders twice opted for debilitating and complex jungle

[5] Chapter 3 of this paper discusses B.H. Liddell-Hart's linkage of theater-level logistics and the strategic level of war. His description of *pure* or *grand strategy* focuses "first and most, on a sound *calculation and co-ordination of the end and the mean."* Italics in original. Liddell Hart, *Strategy*, 322.

[6] William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (Tuscaloosa, AL: University of Alabama Press, 2009), 12.

marches that left Japanese soldiers fatigued and disorganized at the point of attack. Concurrently, the IJN largely ceded daytime maritime superiority within the combat radius of an SBD, forcing Japanese commanders to rely almost exclusively on nighttime operations. But night destroyer runs, while survivable, were incapable of meeting the logistical needs of the soldiers deployed to "Starvation Island," as the Japanese called it; nor could the destroyers deliver the necessary firepower to overcome the Americans defending the perimeter.[7]

Further compounding matters for the Japanese, the JNAF had been ineffective at both of its two broad missions to control or exploit the air. Returning to the current joint definition of air superiority, the Zeros routinely failed to achieve the "degree of dominance in the air battle...that permitted the conduct of operations by [its] related land, maritime, and air forces at a given time and place without prohibitive interference by the opposing force."[8] Quite simply, the Zero pilots were unable to prevail over the Wildcat pilots in aerial combat. In the month leading up to the Battle for Henderson Field, Zeros downed 27 CAF Wildcats. The CAF downed 43 Zeros from the 11th Air Fleet in return. Thus, despite the supposed invincibility of the Zero at the beginning of the Guadalcanal Campaign, in October, Marine and Navy Wildcat pilots were on the winning side of a 1.59:1 kill ratio between the two air superiority fighters. Furthermore, for most of this time, the Wildcats avoided combat with the Zeros and focused on the bombers, leading to the destruction of 29 Bettys. On October 18, however, the marines altered their tactics since the Bettys were not causing significant damage; the marines now believed they could get the better of the Zeros and aggressively pursued aerial combat with the Japanese fighters.[9] After the shift, the kill ratio jumped to 2.34:1 as Wildcat pilots downed 19 Zeros at the cost of 8 Wildcats. Not

[7] Frank, *Guadalcanal*, 260.
[8] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 16.
[9] John B. Lundstrom, *The First Team and the Guadalcanal Campaign: Naval Fighter Combat from August to November 1942* (Annapolis, MD: Naval Institute Press, 1994), 331.

only were the Zero pilots being outfought by their American counterparts at an astonishing rate, they were unable to protect their strike packages as well.

With an inability to first control the air, the JNAF proved unable to exploit air power to any great effect. Through the previous month, the 11th Air Fleet flew approximately 260 Bettys over Guadalcanal on 14 different air raids. Bomber attrition for the month was over 11 percent, with likely two to three times that many aircraft damaged. Even when CAF Wildcats were not driving the Bettys off their bomb runs, the twin-engine bombers were simply not doing enough damage to the field. Weather was a major factor, cancelling more than ten raids during the preceding month and preventing accurate passes on numerous other raids, but the main problem was the Betty itself. Mitsubishi designed the G4M Type 1 land-based attack aircraft to work in tandem with the Zero, but in the development of the "Betty," Mitsubishi once again sacrificed defensive features for greater range. As a result, the "Betty" quickly earned the nickname "Zippo" for its propensity to burst into flames under minimal enemy fire. To offset its vulnerability to fighters and AAA, the Betty crews bombed from high altitude, compounding the effects of weather and making accurate bombing almost impossible.[10] In total, on only three of fourteen raids did the Bettys accomplish any damage that could be classified beyond "light," effects clearly not worth the loss of 29 Bettys and their crews.

Following the Battle for Henderson Field and a heavy month of attrition, the 11th Air Fleet stood down to reorganize, reconstitute, and prepare for the next attempt on Guadalcanal. The end of October found 125 operational aircraft at Rabaul, including 36 Bettys and 40 Zeros of mixed types. The first priority was to rotate out the exhausted aircrew of the 25th Air Flotilla.

[10] Mark R. Peattie, *Sunburst: The Rise of Japanese Naval Air Power, 1909-1941* (Annapolis, MD: Naval Institute Press, 2001), 97.

Assigned to the 11th Air Fleet, the 25th had been on the front lines since April and was spent.[11] The Tainan Air Group, the 25th's premier element, returned home with only a little more than twenty of its original pilots, devastated by seven months of continuous warfare over New Guinea and the Solomons.[12] Its replacement arrived during early November with 26 new Zeros, but most of the new aviators had less than two months of operational experience.[13]

In addition to the Zeros brought in by the Tainan Air Group's replacement, Rabaul received additional replacements as well. On November 11, on the eve of the Air-Naval Battle of Guadalcanal, the 11th Air Fleet had expanded to approximately 199 aircraft, including 60 long-range Zeros and 57 Bettys. And with Buin operational, the JNAF's 45 short-range Zeros were no longer an operational liability as they rotated through the forward air strip. Finally, the JNAF reinforced R-Area Air Force back to 21 aircraft, hoping to mitigate a critical intelligence gap that had widened since the unit's annihilation in mid-October.

As the 11th Air Fleet refitted and reorganized, so too did the CAF. Through the two weeks of relative calm after the Battle for Henderson Field, Halsey and Fitch prepared the CAF for the next round of attacks, beginning with the allocation of additional resources. As of November 7, the CAF possessed 76 aircraft, including 39 operational Wildcats and 17 operational SBDs. Over the following week, Fitch added more Wildcats and more SBDs while MacArthur volunteered his first eight operational AAF P-38 Lightnings.[14] Boasting more firepower and better performance than the current American air superiority fighters, P-38s and the follow-on Grumman fighters would eventually arrive en masse to devastate the Japanese in

[11] Frank, *Guadalcanal*, 410.
[12] Lundstrom, *The First Team*, 471.
[13] Lundstrom, *The First Team*, 472.
[14] Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II, Volume Four, The Pacific: Guadalcanal to Saipan, August 1942 to July 1944* (Chicago, IL: Chicago University Press, 1950), 112.

aerial combat. In mid-November, however, the eight P-38s represented almost the entire Pacific allocation of the new American air superiority fighter.[15]

In addition to an influx of equipment, the first week of November witnessed a significant change in Cactus personnel. Along with a major swap out in flying squadrons and the addition of more ground forces, Halsey sent Brigadier General Louis Woods to replace Geiger as ComAirCactus. Geiger served as ComAirCactus during a brutal period in the campaign when the casualty rates ensured airmen "endured the greatest stress of any group of Americans at Guadalcanal."[16] The losses took their toll on Geiger, who was exhausted after "two months and four days of seeing his always outnumbered young men killed or evacuated."[17] Continuous round-the-clock sorties, night missions over water, poor weather, and severe sleep deprivation from the incessant night bombardment all contributed to exorbitant accident rates. In the month leading up to the Battle for Henderson Field, Cactus lost a total of 103 aircraft; only 48 of those losses came from aerial combat with the Japanese. Geiger had successfully led the CAF through a harrowing two months, but as Miller noted, Wood's arrival was the "best thing that could have happened" for Cactus.[18] Armed with new aircraft, a fresh batch of aviators, and a spirited new commander, the CAF was ready for the upcoming battle—one that all intelligence sources said was imminent.

As both air fleets regrouped through the first week of November, the Tokyo Express struggled to support the Japanese Army's massive logistical requirements. Despite three failed attacks and massive casualties, the 17th Army still had almost 20,000 soldiers on Guadalcanal who required food and medical supplies. Additionally, the 17th Army wanted to transport

[15] Thomas G. Miller, Jr., *The Cactus Air Force*, special illustrated ed. (Reprint, Toronto, Canada: Bantam Books, 1987), 185.
[16] Frank, *Guadalcanal*, 257.
[17] Miller, *The Cactus Air Force,*180.
[18] Miller, *The Cactus Air Force*, 181.

another one and a half divisions to Guadalcanal for the next offensive, set for December. The remainder of the 38th Infantry Division would deploy immediately, while another division would follow a month later. The additions would bring total Japanese strength on Guadalcanal to almost 30,000 by mid-November; this necessitated an average of five destroyer runs per night. The IJN, however, was only averaging about two destroyer runs a night. Furthermore, the 17th Army complained that for every ten generic units of resupply scheduled, the IJN only sent six due to transport limitations, only three were landed due to maritime interdiction by the CAF, and only two survived for consumption, largely due to ground interdiction by the CAF.[19]

In addition to complaints over the amount of sealift, the 17th Army and the IJN disagreed over the character of the sealift. Due to the significant shortfalls in food and supplies, the 17th Army pushed for small, daily "Ant Transportation" runs in addition to the nightly "Rat Transportation." Conversely, the IJN favored periodic massive convoys, arguing that daily "Ant Transportation" placed unrealistic demands on its ability to suppress the CAF during the day. After siding with the IJN, Yamamoto scheduled a massive convoy for November 13, identified as "Z-Day."

While "Rat Transportation" focused primarily on transporting the necessary food and medical supplies to sustain the current troop levels, on Z-day, 11 heavy transports would carry the remainder of the 38th Infantry Division and their heavy supplies. Recognizing the need for round-the-clock suppression of the CAF during the December ground assault, the transports would also carry a large number of heavy artillery pieces to cover the gaps in suppression left by naval or aerial bombardment. But to suppress the CAF for the November 13 amphibious operation, Yamamoto committed the 11th Air Fleet and the Combined Fleet on a scale previously not witnessed in the campaign. Heavy surface forces and two light carriers would

[19] Frank, *Guadalcanal*, 406.

escort the convoy, the 11th Air Fleet would conduct daily attacks on Henderson Field beginning on Z-3, two battleships would bombard the field on Z-1, and heavy naval and aerial bombardment would suppress the CAF on Z-day.

Back on Guadalcanal, Vandegrift aggressively pursued the advantage gained after the failed Japanese attempt on Henderson Field at the end of October. He committed his troops into action both west out of the Matanikau region and east toward Koli Point. His objective was to extend the perimeter, providing more ground for defense in depth, and also to push the Japanese outside of artillery range of the field. Supported by heavy artillery and air power, the marines made some positive gains and were absorbing fewer casualties than the Japanese, but on November 11, Vandegrift directed his marines to return to the established perimeter.

Despite heavy augmentation by additional ground forces, the 1st Marine Division lacked sufficient strength to extend the perimeter both east and west, while still maintaining a large enough ground force to defend the field. As reports of an impending Japanese attack flooded in, Halsey and Vandegrift prepared for the most dangerous course of action, a massive amphibious assault directly on Henderson Field. Through the first part of November, the marines on Guadalcanal received intelligence reports of "an enemy all out attempt upon Guadalcanal soon"; one analyst even surmised the assault would come on November 12 or 13 based on the increase in communications traffic and transportation.[20] But after returning from a first-hand trip to Guadalcanal on November 9, Halsey received intelligence reports with an exact outline of the upcoming Japanese attack. According to John Prados, the "only item American intelligence got wrong on the November battle…[was] the strength of the Japanese carrier forces."[21] The Americans expected up to five carriers including *Shokaku* and *Zuikaku*; ultimately, the Japanese

[20] John Prados, *Combined Fleet Decoded: The Secret History of American Intelligence and the Japanese Navy in World War II* (Annapolis, MD: Naval Institute Press, 1995), 390-391.
[21] Prados, *Combined Fleet Decoded*, 391.

only committed one, the light carrier *Junyo*. With an accurate date and an expectation that the entire Combined Fleet was set to make an appearance, Frank noted, "In Washington, the 'atmosphere of tense expectation'…reached a level that would only be matched on the eve of the Normandy Invasion. It was sensed there—as at the Combined Fleet—that the turning point of the campaign was at hand."[22]

The Air-Naval Battle of Guadalcanal, Part I

On December 7, 1941, the Pacific Fleet boasted six fleet carriers. By November 11, 1942, the Japanese had sunk four, and, in the South Pacific, only *Enterprise* was even partially capable of flight operations. Halsey had only two modern "fast" battleships, about a dozen cruisers, and about twenty destroyers at his disposal. According to intelligence, Yamamoto had two fleet carriers and three light carriers available. Halsey also believed Yamamoto had at least four battleships, far more cruisers, and more destroyers available with even more ships he could draw from if necessary. As just one indication of the size of the fleets massing for the next attack, on November 10, coast watchers reported well over fifty ships in Shortland Harbor, counting at least a half-dozen cruisers, more than thirty destroyers, and eleven transports.

Halsey's solution to Japanese naval superiority was simple: commit all available forces to the defense of Guadalcanal. Several days prior, four separate task forces departed Noumea, including two resupply convoys, the wounded *Enterprise*, and both battleships.[23] On November 11, a convoy of transports converged on Guadalcanal and Turner's ships began unloading critical

[22] Frank, *Guadalcanal*, 427.

[23] Despite almost two weeks of repairs, the condition of *Enterprise's* forward elevator was still unknown after the damage the ship received during the Battle of the Santa Cruz Islands. Kinkaid did not want to test the elevator and risk the chance it might stick in the down position, thereby preventing flight operations. Technicians from Noumea remained with the ship and continued vital repair-work even after she departed for Guadalcanal. After the Air-Naval Battle of Guadalcanal, technicians finally tested the elevator and it functioned properly.

reinforcements pulled from the rear garrisons. Unlike Ghormley, Halsey was willing to weaken his rear echelon bases in order to ensure Vandegrift had fresh troops.[24]

On November 10, the Z-day preparations went into effect as Zeros returned to Guadalcanal in a relatively uneventful fighter sweep; the following day, however, the JNAF arrived in force. Around mid-morning on November 11, nine Vals and 18 Zeros arrived from Buin and attacked Turner's approaching transports, but achieved only light damage for the loss of five Vals and two Zeros. Two hours later, 25 Bettys and 26 Zeros from Rabaul inflicted only minimal damage to the airfield at the expense of four more Bettys. It was a difficult day for the CAF, though: nine Wildcats and six pilots perished between the two raids.

On the morning of November 12, the 11th Air Fleet launched another air raid aimed at destroying the transports still anchored off Lunga Point. Sixteen torpedo-armed Bettys escorted by 30 Zeros made the trip to Guadalcanal, dropped to low-altitude, and began their torpedo-runs. With ample warning from the coast watchers, Turner got his ships underway and the CAF scrambled 28 fighters to defend against the inbound aircraft. In a repeat of previous low-altitude torpedo-attacks, the bombers paid dearly for their efforts. In just eight minutes, AAA and air defense brought down 11 of the 16 bombers and destroyed an additional Zero as well. More troubling for the Japanese, they failed to inflict any damage on the transports. The CAF lost four aircraft and one pilot during the engagement.

As the remaining bombers, many of which were heavily damaged, limped back home to Rabaul, American reconnaissance planes reported the presence of numerous inbound convoys. B-17s discovered Rear Admiral Hiroaki Abe's Bombardment Force, consisting of the two battleships, *Hiei* and *Kirishima*, and its seven escorts. Another aircraft reported the position of

[24] Eric Hammel, *Guadalcanal, Decision at Sea: The Naval Battle of Guadalcanal, November 13-15, 1942* (New York: Crown Publishers, Inc., 1988), 39.

the destroyers scheduled to rendezvous with Abe's Bombardment Force. Turner effectively estimated Japanese strength and assumed their objectives were to bombard Henderson Field, attack his transports, or both. With Kinkaid's Task Force 16, comprised of *Enterprise* and the two American battleships, too far away to support, Turner committed the majority of his escorts against Abe's Bombardment Force. On orders from Turner, Read Admiral Daniel Callaghan assumed tactical command of five cruisers and eight destroyers tasked to defend against Abe's command of two battleships, one cruiser, and fourteen destroyers. After escorting Turner's transports south, Callaghan turned his force around and prepared for battle. Heavily outnumbered by any possible measure, including number of guns, size of guns, weight of broadsides, or number of torpedo tubes, the only advantage Callaghan enjoyed was that most of the Japanese believed the Americans would "go away as usual"; but Ghormley was no longer in command, and Nimitz and Halsey wanted their forces to fight.[25]

The surface action that occurred between Abe's and Callaghan's task forces shortly after midnight on November 13 goes by various names: many historians, including Frank, call it the Battle of Friday the Thirteenth; the Japanese call it the Third Battle of the Solomon Sea; and others label it the First Battle of Guadalcanal. In any case, the night surface action rests as one of the opening rounds in the larger action that spanned the events from November 12-15 called the Battle of Guadalcanal, the Naval Battle of Guadalcanal, or as Frank suggested, the Air-Naval Battle of Guadalcanal. [26] But regardless of the naming convention one selects, by all accounts, the brawl between the two surface task forces that night "saw some of the fiercest naval night

[25] Frank, *Guadalcanal*, 431-435.

[26] Although he routinely called the November 12-15 actions the Naval Battle of Guadalcanal, Frank suggested a more appropriate name is the Air-Naval Battle of Guadalcanal, which this paper adopts. He called the individual surface action after midnight on November 13 the Battle of Friday the Thirteenth. Frank then subsumed the November 13 night surface action and the air battles the following day to sink *Hiei* under the name the Battle of Guadalcanal Part I. This paper adopts the same distinction. Frank, *Guadalcanal,* 490-491.

combat of the war at ranges that would have delighted John Paul Jones."[27] Later, Admiral King called the engagement "the fiercest naval battle ever fought."[28]

About an hour after midnight on Friday the Thirteenth, Abe's task force, inbound for its bombardment mission, collided with Callaghan's task force. As had been the case at Cape Esperance, the first detects of the night came from *Helena's* newly fielded SG surface radar with the lead destroyers of the opposing forces about ten miles apart. Fielded after the start of the war, the SG radar and its 360 degree display were quantum leaps forward in naval technology. Unfortunately for the USN, the SG radar "simply overwhelmed the imaginations of most of the U.S. Navy's senior operational commanders."[29] As a perfect example, neither Callaghan nor Scott, the commander at Cape Esperance, placed their flagship aboard a ship with an SG radar, thereby repeating the mistake made at Cape Esperance. Furthermore, Callaghan failed to place any of the SG-radar equipped ships in advantageous positions in the line, and the results at the tactical level were catastrophic for the American task force.

Despite an eighteen minute advantage in detection, confusion and miscommunication prevented Callaghan from taking aggressive action to place his fleet in a favorable position. He likely attempted to cross Abe's T with a check to the north, but it was too late and too slight. Instead of crossing Abe's T, Callaghan put the lead elements on a direct collision course.

On the Japanese side, confusion and miscommunication were just as pervasive. Having made several turns earlier in the evening, Abe believed the five of his destroyers were six to nine miles in front of his main body clearing the waters off Lunga Point. In reality, and unbeknownst to any of the Japanese sailors, only two of the five destroyers were actually in front of Abe, the

[27] Lundstrom, *The First Team, 476.*
[28] Robert Sherrod, *History of Marine Corps Aviation in World War II* (Baltimore, MD: The Nautical & Aviation Publishing Co. of America, 1987), 115.
[29] Hammel, *Guadalcanal: Decision at Sea*, 23.

other three were behind his main body. Nobody was in a position to provide timely information on the inbound American fleet.

The battle began after the lead destroyers visually detected each other at a range of about 2,000 yards. Shortly after, the big ships on each side opened fire as the destroyers traded jabs. As the two fleets steamed toward each other, additional maneuvers added to the confusion, and events "began to tumble, one upon another, faster than either Callaghan or Abe could manage them."[30] As a testament to how difficult it was to command and control night surface warfare was at this time, James Hornfischer best described the subsequent action as a "melee, Colosseum-style, with the lights out, and a heavy fog blown over the fighting arena."[31]

Although the precise series of events is difficult to determine, several historians have pieced together a credible timeline, although some gaps exist. Likely, two of the American lead-destroyers and one of the Japanese destroyers went down almost immediately, while many other ships suffered significant damage in the opening volleys. In the confusion, *San Francisco* fired repeated volleys into *Atlanta* from close range, killing Scott.[32] *San Francisco* then passed abeam *Hiei* and the two vessels traded shots, killing Callaghan. Additional American destroyers were sunk by combinations of 14" shells from the battleships and torpedoes. *Helena* used her SG radar to navigate the battle, firing on multiple targets of opportunity and remaining largely undamaged. *Fletcher*, the last destroyer in the line, even though equipped with an SG radar could make no sense of the "utterly confused jumble of ships ahead," and likely fired multiple torpedoes against *Atlanta*, luckily causing no damage.[33]

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[30] Frank, *Guadalcanal*, 438.
[31] James D. Hornfischer, *Neptune's Inferno: The U.S. Navy at Guadalcanal* (New York: Bantam Books, 2011), 282.
[32] Many historians attributed Callaghan's death to Japanese fire. In the footnotes on pages 443-444, Frank discussed how he arrived at the conclusion that many of *Atlanta's* critical damage actually originated from multiple volleys from *San Francisco*, including the impacts that mortally wounded Scott. Frank, *Guadalcanal*, 443-444.
[33] Frank, *Guadalcanal*, 447.

Events on the Japanese side, if possible, are even more confused, as few commanders kept detailed accounts of the battle. Much like on the American side, most of the destroyers and the single cruiser became enmeshed with the American forces and fired at targets of opportunity as they presented themselves, to include fellow Japanese ships. In an attempt to direct gunfire, *Hiei* used its massive searchlights to detect and identify American targets, but this likely attracted more fire than it helped direct. Although none of the American ordnance could penetrate either battleship's main armor, *Hiei* absorbed almost 100 hits during the course of the battle. Her sister-ship, *Kirishima,* survived the battle largely untouched while doling out heavy damage to multiple American ships.

As was the case at both Savo Island and Cape Esperance, fog, friction, and chance were all major factors in the fight, perhaps even the dominant factors. At the end of the battle, *Atlanta* and four American destroyers were sunk or damaged beyond repair. Light cruiser *Juneau* was heavily damaged, and a Japanese submarine finished her off the following day. Finally, *San Francisco, Portland,* and two additional destroyers were all heavily damaged and required a dry-dock. At the close of the battle, all the Americans had to show for their severe losses was one destroyer sunk and four additional destroyers damaged; but the consequences of the battle went well beyond the damage inflicted on those five Japanese destroyers.

Through the sacrifice of Callaghan, Scott, and almost 1,500 USN sailors, Halsey and Turner prevented a repeat of "the bombardment" and bought additional time for Cactus. Although *Hiei's* hull was intact, the nearly one-hundred hits imposed by Callaghan's fleet left her dead in the water. Furthermore, as a result of the fierce American opposition and the utter confusion of the battle, Abe elected to cancel the battleship bombardment mission. *Kirishima* subsequently retired, while some of Abe's escorts remained behind with *Hiei.* Upon hearing of

the cancelled bombardment mission, Yamamoto slipped the arrival of Tanaka's transports by 24 hours until November 14. With dawn fast approaching, Japanese attention shifted to the preservation of the Japanese capital ship.

As the sun rose on November 13, surveillance aircraft discovered the evidence of the previous night's battle. Numerous ships remained scattered about Iron Bottom Sound, as it was named following the Battle of Savo Island, in various stages of debilitation. *Hiei*, although unable to move, could still fire and attempted to range its guns on a crippled American destroyer to no avail. *Portland* fared better against a crippled Japanese destroyer, sinking her and bringing IJN losses up to two destroyers. By this time, *Kirishima* and her escorts were outside of the CAF's combat radius, but *Hiei* floated perilously just 50 miles from Henderson Field. As Hammel remarked, "Given the right circumstances, *Hiei* was salvageable, but the rising sun exposed her to a danger every bit as fearsome as any" battleship had ever faced.[34]

All through the day, the CAF assaulted the large battleship while the Japanese fought a desperate battle to preserve her. Between the 11th Air Fleet and *Junyo*, the IJN launched multiple waves of Zeros to fend off the CAF fighters. In the ensuing air battles, three Zeros and one Wildcat were lost, and the IJN lost another eight due to bad weather. But, as always, proximity favored the CAF. Whereas the IJN managed only 35 total Zero sorties, the CAF launched 56 SBDs and TBFs directed at sinking *Hiei*, in addition to dozens of Wildcat sorties. Fitch also contributed 14 B-17 strikes from Espiritu Santo. Through the day, *Hiei* absorbed five 500-pound bombs and ten torpedoes, by sunset on November 13, she lay sinking north of Savo Island. In stark contrast to the damage American surface ships often inflicted on attacking Japanese fighters, *Hiei* and her escorts only managed to damage a single TBF.

[34] Hammel, *Guadalcanal: Decision at Sea*, 331.

Hiei finally disappeared below the surface sometime during the night of November 13-14. As Miller noted, "Although the terrible sacrifices of the [USN] cruiser and destroyer sailors had given them the opportunity, it should be recorded that the first battleship to be sunk by Americans in the Second World War was sunk because of the attacks of a handful of Marine and Navy aircraft."[35] Mitchell would have been proud of the CAF's effort. For the Japanese, as Hammel remarked, "The only way to retrieve strategic victory from Abe's stunning beside-the-point tactical victory was to send in the more powerful surface forces to destroy the Cactus Air Force. This the Japanese did, with alacrity."[36]

The Air-Naval Battle of Guadalcanal, Part II

Although *Hiei* had joined the wreckage on the floor of Iron Bottom Sound, Yamamoto's plan remained largely intact with only a 24-hour delay in the amphibious landings. After returning to Shortland Harbor around noon on November 13, Tanaka's transports and his escorts departed again in the mid-afternoon. With the slowest transports capable of only 11 knots, Tanaka recognized his transports would be vulnerable to the "wrath of the Cactus fighters and bombers for nearly all the daylight hours of November 14."[37] Furthermore, Tanaka surmised that the Allies were aware of his transports from the routine presence of B-17s over Shortland Harbor earlier in the week. He was correct on both accounts.

As Eric Hammel noted, the Allies "did indeed know almost everything there was to know about Tanaka's convoy and its progress to and from the Shortlands."[38] Although this was accomplished largely through radio intercepts, B-17s out of Espiritu Santo had observed Tanaka's initial departure on November 12 and his subsequent return on November 13. Halsey,

[35] Miller, *The Cactus Air Force*, 192.
[36] Hammel, *Guadalcanal: Decision at Sea*, 346.
[37] Hammel, *Guadalcanal: Decision at Sea*, 365.
[38] Hammel, *Guadalcanal: Decision at Sea*, 365.

Vandegrift, and Woods all expected the convoy to depart the Shortlands again within the next 24 hours and planned their air searches accordingly. On the morning of November 13, Halsey received intelligence from Pearl Harbor updating Z-day to November 14.[39] Nimitz also communicated that he expected the Combined Fleet to participate as well, which they did that night.

The night of November 13-14 witnessed Mikawa's return to Guadalcanal with another bombardment force of six cruisers and four destroyers. Halsey believed the CAF and *Enterprise*, now within range of Guadalcanal, could defend the waters by day, but he wanted Rear Admiral Willis Lee's battleship task force in a position to deflect any night attacks on the field. Due to conflicting messages from Halsey, Lee was unable to reach Guadalcanal until the morning of November 14, leaving Mikawa an opportunity to bombard Henderson Field unopposed.[40] In about thirty minutes of bombardment, Mikawa's cruisers dispensed nearly 1,000 8-inch projectiles inside the perimeter.

Although they achieved significant damage to Fighter 1, the Japanese cruisers missed the main airfield. Luckily for the CAF, the bombardment only destroyed three aircraft, although it did send shrapnel through an additional 15 Wildcats. But unlike the previous bombardments in October that left Geiger's strike force in ruins, the strength of the CAF no longer rested on the ability of the air superiority fighters to defend against air raids. By this time in the campaign, Wood's strength rested in the striking force of his SBDs and TBFs. As Mikawa's bombardment force departed the waters off Lunga Point, these aircraft remained largely untouched.

The CAF's first target of November 14 was Mikawa's task force, still within range of Wood's fighters. About an hour after dawn, eleven attack aircraft and two Wildcat escorts

[39] Lundstrom, *The First Team,* 484.
[40] Frank, *Guadalcanal*, 463.

launched as the first of multiple waves to attack Mikawa's cruisers. In the attack, SBDs caused light damage to several ships and heavy damage to the heavy cruiser *Kinugasa*. Later in the morning, aircraft from the wounded *Enterprise* arrived as well to harass Mikawa's retiring task force. The *Enterprise* aircrew contributed more damage to *Kinugasa*, added minor damage to two additional light cruisers, and then landed at Henderson Field to refuel and rearm. Before noon, a second wave of SBDs from *Enterprise* inflicted more damage to two additional cruisers and finally ended the harrowing morning of *Kinugasa*. Several close misses from the SBDs finally capsized her; she sank quickly with over 500 Japanese sailors still on board.

After the sinking of *Kinugasa*, American attention shifted to Tanaka's inbound convoy of 23 ships that so far had been neglected. During the morning, a section of SBDs from *Enterprise* and a B-17 detected and reported the convoy, but the American fighters remained focused on Mikawa's task force. By 1000, Woods and his strike commander realized this new convoy was the day's essential target. As Hammel noted, the CAF "pulled out all the stops: Cactus Air Force would devote itself fully to sinking the transports before they could land enough troops and ordnance to endanger the Lunga Perimeter directly."[41]

Shortly after noon, 18 CAF SBDs, 7 TBFs, and 12 escorts converged on Tanaka's convoy, quickly confirming his fears about the survivability of the slow-moving transports. Despite the presence of air cover, the American strike force and escorts overwhelmed the six Zeros and scored heavily on the transports. In the short engagement, the CAF fatally wounded two of the transports and heavily damaged a third, forcing it to turn back around to Shortland Harbor with two destroyer escorts.

Although the Marine aviators encountered some Zeros and classified AAA as "moderate," every fighter returned to Guadalcanal where ground crews quickly prepared them

[41] Hammel, *Guadalcanal: Decision at Sea*, 367.

for the next wave.[42] In contrast, the Marine aviators downed three of the six escorting Zeros. After this wave, the three remaining Zeros returned to Buin, leaving Tanaka without any Zeros overhead for the next 90 minutes. Lacking air cover and down five ships after just one raid, an "appalled" Tanaka continued on toward Guadalcanal.[43]

For the remainder of the day, Woods launched his fighters as soon as a decent size strike group was ready. The first of these smaller strikes consisted of a mix of nine *Enterprise* and Marine aviators, most of whom had only been on the ground about 30 minutes before ground crews had their aircraft rearmed and refueled for another strike. Another mixed wave of SBDs took off a few minutes later; both groups found the convoy. Unopposed, they scored several hits and sank another transport.

About the same time, a third wave took off from Cactus while two waves of 15 B-17s arrived overhead from Espiritu Santo. The B-17s left an indelible impression on Tanaka, but, indicative of the problems of bombing moving targets form high-altitude, possibly achieved damage to only one transport.[44] Perhaps more importantly, the heavily armed and durable Flying Fortresses distracted a number of recently arrived Japanese Zeros. Although the exact number is unknown, the B-17 gunners claimed a total of six kills in the engagement. Although six was optimistic, likely they did achieve one or two aerial victories as 13 of the 45 Zeros launched that day failed to return home.[45]

Enterprise contributed the next major raid of the day, launching its last eight SBDs and 12 Wildcat escorts. After this last attack, Kinkaid possessed only 18 Wildcats to defend

[42] Lundstrom, *The First Team*, 500.
[43] Lundstrom, *The First Team,* 500.
[44] Tanaka noted 14 years later that of all the confused and chaotic memories of that terrible day, one of the lasting impressions was the sight of all those wobbling bombs from the high-flying Super Fortresses. Miller, *The Cactus Air Force*, 199-200.
[45] Nine of the Zero losses came directly in aerial combat. Four more failed to return, likely due to damage inflicted by Allied aircraft. Frank, *Guadalcanal*, 467.

Enterprise, the only operational American carrier in the Pacific. Additionally, with all of her TBFs and SBDs supporting the attacks against Tanaka's convoy, *Enterprise* lacked any striking ability whatsoever. Immediately after launching its final strike group, Kinkaid justifiably retired south to the cover of Espiritu Santo. Around mid-afternoon, the *Enterprise* aircraft arrived over Tanaka's convoy and fatally crippled two additional transports, while damaging others. After conducting their attack, the Naval aviators turned toward Henderson Field. Out of aircraft and retiring, *Enterprise* was done.

The CAF, however, was not. Through the late afternoon, mixed groups of Naval, Marine, and AAF aviators gathered as aircraft became ready and launched in three successive waves. Arriving before dusk, the three waves scored several additional hits on the remaining transports, sinking one outright. During these final attacks, the Japanese Zeros did achieve some limited success, downing two SBDs. For the entire day, the American aircraft losses came to five SBDs and two Wildcats.

As night fell, Tanaka surveyed the damage. Six of his transports were already sunk or abandoned and another was on its way to Shortland Harbor, where it eventually succumbed to its damage and sank as well. Of the four remaining, several were damaged by strafing or near misses. Of his destroyer screen, many were spread out gathering survivors, and Tanaka doubted whether he could begin unloading before by dawn.[46] Further complicating matters, Japanese intelligence reported the approach of a surface task force; Tanaka grimly noted, "Prospects looked poor for the operation."[47] Just as Tanaka was contemplating a withdrawal, Combined Fleet directed him to continue on to Guadalcanal. After marshalling his remaining ships, Tanaka resumed his course.

[46] Frank, *Guadalcanal*, 468.
[47] Quoted in Frank, *Guadalcanal*, 468.

Surveillance aircraft of R-Area Air Force detected Lee's six-ship task force through the afternoon and evening of November 14, but on multiple occasions, Japanese aircrew failed to identify the two capital ships. This gross underestimation of American strength persisted even through the first exchanges of the battle. Had the Advance Force commander, Vice Admiral Nobutake Kondo, known this would be the first battleship duel of the war he would certainly have been more cautious as he closed the range with the American "new-type cruisers."[48]

Despite a heavy battleship advantage, the lineup was not as advantageous for Lee as one might initially think. Lee's two new battleships, *South Dakota* and *Washington*, certainly outclassed Kondo's lone battleship, *Kirishima*. The American battleships had nine 16-inch guns each as compared to *Kirishima's* eight 14-inch guns, and *Kirishima's* broadside weighed less than half of that from either American ship.[49] Additionally, both USN battleships possessed the modern SG radar and Lee was fully aware of its operational utility; but Kondo held many other advantages. Whereas Lee had only four destroyers to screen his capital ships, Kondo had four cruisers and nine destroyers. The Japanese also boasted almost one hundred torpedo tubes compared to about fifty on the American destroyers, and the Japanese were considerably more adept at night surface tactics. As Frank noted, "The battle makes for an interesting and symbolic match-up, for each commander brought a strong preponderance in his navy's favored weapon."[50]

The "Duel of the Dreadnoughts," as Hammel called it, commenced shortly before midnight on November 14. After visual observers matched SG radar returns to Japanese ships east of Savo Island, the two battleships opened fire from south to north as Lee's column tracked

[48] The first visual observers to detect Lee's task force labeled the two battleships as "new-type cruisers." Frank, *Guadalcanal*, 473.
[49] Although *South Dakota* had three main turrets, Hammel highlighted that the forward turret was still suffering the effects of a direct-bomb hit during the Battle of the Santa Cruz Islands three weeks prior. This reduced the number of 16-inch guns in the formation from 18 to 15. Hammel, *Guadalcanal: Decision at Sea*, 388.
[50] Frank, *Guadalcanal,* 472.

west almost due south of Savo Island. After several minutes the battleships checked fire, and Lee's destroyers, placed in the front of his column, opened fire on a second formation of ships west of Savo Island. As the lead ships of Kondo's western formation rounded Savo tracking southeast, they opened fire as well; once again visual observers reported the American formation as a mix of destroyers and a cruiser. In this exchange, the American destroyers took the worst of it. Within minutes, the combination of Japanese gunfire and torpedoes sank two destroyers and critically damaged the other two. Lee promptly ordered them to retire.

The performance of *South Dakota* and *Washington* during this first phase of the action was somewhat disappointing. Surprised by the ships west of Savo Island, the battleships were late to turn their guns on any of the ships in Kondo's western formation. Furthermore, SG radar and visual observers struggled to break out any targets against the clutter of Savo Island. *Washington* left one Japanese destroyer dead in the water after visual observers spotted fire from its main guns. *South Dakota*, however, "contributed little to this phase of the battle, because of…a series of problems of her own making" that left her without power and effective fire control for a critical period in the battle.[51]

As the initial phase of the battle came to a close, *Washington* was left heavily outnumbered; all four American destroyers were out of the battle and *South Dakota* was struggling to get back into the fight. Fortunately for Lee, Kondo still refused to believe he was facing any enemy capital ships, nor did the Japanese have any awareness of *Washington's* position. As Hammel noted, she likely slipped through the battered American vanguard to the west of Savo Island while the Japanese were overly concerned with the destroyers and *South*

[51] Frank, *Guadalcanal, 477.*

Dakota's "magnificent opener—in which she set herself afire."[52] Feeling like the battle was well in hand, Kondo ordered the bombardment force to carry out its mission against Henderson Field.

About the same time Kondo ordered the bombardment, multiple reports arrived claiming the enemy force contained one, and perhaps two, battleships. Still, Kondo refused to believe the reports of his fleet's visual observers. A few minutes later, Kondo's own flagship, the heavy cruiser *Atago*, came alongside *South Dakota* heading in opposite directions. Again, lookouts declared it a battleship. Kondo finally came around when multiple searchlights revealed the massive superstructure of the capital ship. The Japanese warships of the Bombardment Force, including *Kirishima*, immediately assaulted the American battleship with volley after volley of fire while also launching multiple torpedoes. Although *South Dakota* absorbed almost thirty hits, including some 14-inch rounds from the *Kirishima*, the Japanese ships were all prepared for the bombardment mission and their guns were loaded with incendiary and explosive rounds, not the armor piercing rounds best suited for naval warfare. The end result was that while *South Dakota* took heavy damage, making her "deaf, dumb, blind, and impotent," none of it was life-threatening.[53] Amazingly, none of the Japanese ships detected *Washington*, just 8,000 yards away from *South Dakota*.

As Kondo's Bombardment Force focused on *South Dakota*, gunners on *Washington* were able to match the SG radar returns with the many searchlights now illuminating *South Dakota* to gain an accurate picture of the battle. Smaller guns assaulted *Atago*, while *Washington's* main turrets and additional 5-inch guns shredded the lone Japanese capital ship. In a matter of

[52] In addition to the electrical problems that wreaked havoc on the ship's power supply and the fire control system, *South Dakota* also set herself on fire when she fired the rear turret directly aft. The guns ignited volatile fuel vapors in and around two scout planes that were sitting on catapults on the ship's quarterdeck. The flaming aircraft were knocked overboard on the subsequent volley, but many small fires remained highlighting the ship's position to the Japanese. Hammel, *Guadalcanal: Decision at Sea*, 424-425.
[53] Rear Admiral Willis Lee. Quoted in Frank, *Guadalcanal*, 480.

minutes, *Kirishima* absorbed nine 16-inch armor piercing shells and dozens of 5-inch projectiles, causing mortal damage. A few minutes later, Kondo's remaining ships finally detected the second American battleship. After attacking *Kirishima,* Lee steamed westward in an attempt to pull the Japanese fleet away from the wounded American ships near Savo and away from their bombardment mission off Lunga Point.

As the battle came to a close, commanders from both sides assessed the situation. With *Kirishima* dead in the water, *Atago* the victim of light damage, and many of his remaining ships chasing after *Washington*, Kondo cancelled another bombardment of Henderson Field. He then radioed Tanaka and directed him to proceed to his anchorage and beach his four remaining transports. *Washington* had thus far avoided any damage, but after its detection by the Japanese ships, many torpedoes had come perilously close to hitting the still undamaged battleship. Lee correctly surmised that the Japanese would be unable to bombard Cactus and that the CAF could clean up the convoy at daylight. Content that he had achieved his objectives, Lee retired.

Through the remainder of the night, Tanaka led his transports to the north coast of Guadalcanal and beached them about 15 to 20 miles from Lunga Point. Although Tanaka's chain of command disagreed about the decision to beach the transports, Yamamoto ultimately concurred, knowing they would not survive at anchorage. With insufficient time to turn the four transports around and escape the CAF before daylight, the only hope was to beach them and get as much of the supplies out as possible. After running the transports aground about an hour before dawn, the soldiers quickly evacuated the ships and piled as many supplies as they could unload on the shore nearby. Of all the survivor laden destroyers, only one landed any soldiers;

the rest of the survivors earned a trip back to Shortland Harbor as Tanaka attempted to escape north of Santa Isabel before the air attacks commenced at dawn.[54]

Before dawn on November 15, the first CAF fighters were already initiating their attacks on the four beached transports. Although the soldiers had disembarked, many of the supplies still on board were quickly destroyed as the first group claimed hits on three of the transports. Ten minutes later, Naval fighters detached to Guadalcanal from *Enterprise* added more hits. Float planes of the R-Area Air Force and Buin Zeros offered sporadic, ineffective resistance against the repeated waves of attackers.

All morning CAF fighters planted bombs on both the ships and the supplies accumulating on shore as the Japanese attempted to salvage anything they could. Vandegrift then turned his newly arrived 155mm guns and his 5-inch shore batteries onto the Japanese transports, followed shortly by the destroyer *Meade,* who waltzed up and down the coast bombarding the transports and the beaches with her 5-inch guns. Later, B-17s from Espiritu Santo added to the destruction, although six of them turned back after the mission commander saw the conditions of the transports and decided it was not worth wasting their bombs.[55] Throughout the morning, the Japanese watched helplessly as all four transports burned on the beaches of Guadalcanal, as did most of the ammunition, food, medical supplies, and heavy guns so desperately needed by the Japanese soldiers. After a brief interlude where the CAF fighters searched for additional targets offshore, they eventually returned to burning hulks of the four transports, perhaps for no other reason than because they could.

The final anti-climactic act of the three-day battle was an air raid from Buin that arrived mid-afternoon. Perhaps in response to *Meade's* unchecked bombardment, Buin launched a

[54] Lundstrom, *The First Team*, 515.
[55] Lundstrom, *The First Team*, 517.

mixed strike group of 20 total Vals and Zeros. The first six Zeros turned around, potentially acting as a decoy for the next wave of Vals and Zeros. With *Meade* already gone, the Vals returned to Buin with their bombs, while the seven remaining Zeros engaged a flight of Wildcats. In the brief encounter, the Wildcat pilots downed one Zero at the expense of one Wildcat, an operational loss, thereby bringing the Air-Naval Battle of Guadalcanal to conclusion.

Conclusion

The Air-Naval Battle of Guadalcanal began on November 12 as both sides sought to land reinforcements on the island. Turner deposited all of his 5,500 men and most of the supplies without losing a ship; Tanaka landed about 15 percent of his 13,000 men, landed "pathetically few supplies," and lost eleven transports that Japan could ill-afford to spare. During the three days, the battle cost the U.S. Navy two valuable antiaircraft cruisers, seven destroyers, and over 1,700 sailors with damage to multiple additional ships. Conversely, the IJN lost two older, but valuable battleships, a heavy cruiser, three destroyers, and almost 1,900 men with additional damage to other ships as well. In the air, the battle cost 26 American aircraft and 41 Japanese aircraft. Not only were the American losses less in terms of numbers, tonnage, and importance, they were also easier to replace.[56] Thus, although both sides claimed tactical victory following the night battleship engagement, from an objective and a materiel standpoint, the Air-Naval Battle of Guadalcanal was a clear American victory, even a *decisive* one; not just because of a comparison in objectives or losses, but because of its impact at the operational, strategic, and grand strategic levels of war.

At the operational level of war, although the Guadalcanal Campaign would continue on until February 9, 1943, it was now decided. As Sherrod concluded, "the threat to Guadalcanal

[56] Frank, *Guadalcanal*, 490.

was over," and the marines at Henderson knew it.[57] Lieutenant Colonel "Chesty" Puller later recalled later that as the marines listened to the fragmentary reports of how the CAF was cutting the enemy convoy to pieces, everyone recognized Guadalcanal was now over the hump.[58] From a ground standpoint, the Japanese still had a formidable force of over 20,000 men on the island, but they were starving and diseased, the IJN was unable to supply them, and the 17th Army would never make another attempt on the Marine perimeter. In the air, the inconsequential air raid from Buin was the last daytime air raid on Guadalcanal until late January, 1943, when the Japanese were attempting to evacuate the remaining soldiers.[59] Finally, at sea, the IJN's primary concern after November 15 was the sustainment and then the recovery of the soldiers already on Guadalcanal. The Japanese made no more attempts to move forces to Guadalcanal, and from mid-November on, no ships larger than a destroyer ever came within range of Cactus' fighters, day or night.[60]

The effects of the Guadalcanal Campaign at the operational level of war directly affected the strategic level of war. Both Miller and Frank identified the Guadalcanal Campaign as the strategic turning point in the Pacific. Prior to the summer of 1942, the Japanese had been on the offensive across the Pacific. Furthermore, they were on the offensive in New Guinea until the situation in the Southern Solomons forced them to pull air, land, and naval forces away from the confrontation with MacArthur's forces. As Miller noted, "From mid-November, 1942, until their empire came to an end on the quarterdeck of the *Missouri*, the Japanese were in bitter, reluctant,

[57] Sherrod, *History of Marine Corps Aviation,* 117.
[58] Sherrod, *History of Marine Corps Aviation, 116.*
[59] Lundstrom, *The First Team*, 521.
[60] Hammel, *Guadalcanal: Decision at Sea*, 439.

but constant retreat."[61] It is for the same reasons, Frank argued "Guadalcanal, not Midway, represented the actual shift in strategic postures."[62]

Certainly the heavy attrition the Japanese suffered during the Guadalcanal Campaign played a critical role in facilitating this strategic shift, but the effects of poorly trained and inexperienced crews were most evident at the tactical level. At the strategic level of war, Guadalcanal was decisive because of its impact on theater logistics. The vast distances involved stressed shipping capacity. Confirming this idea, in mid-1942, Marshall commented to President Roosevelt that the problems in the Pacific were due to a lack of shipping, not a lack of troops.[63] With Guadalcanal securely in Allied hands, the Japanese were unable to contest the vital sea lines of communication between the U.S. and Australia.

As an added side benefit for the Allies, the loss of eleven transports in November and three more in October illuminated a critical flaw in IJN strategic planning. As H.P. Willmott concluded, the IJN went to war with the assumption that new construction could offset the loss of about 75,000 tons of shipping per month. Since March 1942, however, Japanese shipping capacity had declined, in large part due to the Guadalcanal Campaign.[64] As of November, about 12 percent of total Japanese shipping capacity was tied up in a losing effort in the Solomons with significant opportunity costs to other regions of the Empire. Furthermore, Japanese losses during the three day Air-Naval Battle of Guadalcanal represented about 75,000 tons of shipping capacity, or the total losses Japan could offset in an entire month. These types of losses in a single engagement could simply not be tolerated at the strategic level of war, and in Willmott's perspective, the Guadalcanal Campaign "represented an unraveling of the Japanese effort that

[61] Miller, *The Cactus Air Force*, 210.
[62] Frank, *Guadalcanal,* 614.
[63] Craven and Cate, *The Army Air Forces in World War II*, 51.
[64] H.P. Willmott, *The War with Japan: The Period of Balance, May 1942-October 1943* (Wilmington, DE: Scholarly Resources, Inc., 2002), 127.

had begun, if not in the second week of August, than certainly in mid-September."[65] In a short war, these types of losses were tolerable, but the Guadalcanal Campaign demonstrated to the Japanese they were no longer in for a short war.

Clausewitz argued that statesmen and generals must understand the character of the war upon which they are embarking, "neither mistaking it for, nor trying to turn it into, something that is alien to its nature."[66] Many argue the Japanese made this cardinal mistake on December 7, 1941; that although the Japanese sought a limited war fought for limited objectives in the Pacific, the Americans were committed to an unlimited war from the start. Perhaps this is accurate, but this analysis comes with the benefit of hindsight. At the grand strategic level, it was *reasonable* for the Japanese to believe the Americans would not risk large amounts of blood and treasure for the previous colonial holdings of the European empires, especially when the U.S. would soon be engaged in an unlimited war against Germany. It was *reasonable* to believe the war could be short, and that the IJN could defend the perimeter against the American treaty fleet and push for a negotiated settlement. And finally, it was *reasonable* for the Japanese to believe the penalty for defeat in a limited war would be limited. The Guadalcanal Campaign invalidated all of these reasonable beliefs.

Between August and mid-November, 1942, the U.S. demonstrated its willingness to pay heavily in men and materiel to capture and hold locations such as Guadalcanal and Tulagi, that there would be no negotiated settlement, and that even the treaty fleet and the forces deployed in

[65] H.P. Willmott noted that about 700,000 tons out of about 6 million total tons of shipping capacity was tied up supporting the Guadalcanal Campaign. With large portions supporting the Army and the homeland, this 12 percent of capacity was a large percentage of the discretionary shipping capacity available to the military. By using it directly or indirectly in support of the Guadalcanal Campaign, it was not available to support other ongoing operations. Even after November 15, significant shipping capacity was still required to support and then retrieve the remaining soldiers on Guadalcanal. Willmott, *The War with Japan*, 127-128.

[66] Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 88.

1942 could best the Japanese in island warfare. Additionally, as the Guadalcanal Campaign deteriorated into a brutal war of attrition in all domains, U.S. actions hinted that the penalties would go far beyond a limited consequence; such is the price for dragging a democracy into war. The conduct of the marines, soldiers, sailors, and airmen during the campaign suggested American retribution would be total.

In short, the Guadalcanal Campaign established the character of the Pacific war at the grand strategic level. Conflict in the Pacific would be an industrialized, firepower intensive, unlimited war with catastrophic consequences for the loser, which could now only be Japan. Furthermore, the war would not be short, unless Japan surrendered while still having the capacity to resist. With the support of the population for total war and clear industrial superiority, the U.S. had both the will and capacity to surpass any previously known logical limits for violence.

Although Yamamoto could not have foreseen the devastating manner in which Japan and the U.S. would ultimately conclude the war, after Guadalcanal, he knew that conclusion was no longer in doubt.[67] Of course Yamamoto never witnessed the utter destruction of his homeland first-hand. On April 18, 1943, a flight of Cactus Air Force P-38s took off from Henderson Field on a mission of strategic assassination. Possessing Yamamoto's exact itinerary, the P-38s found his aircraft and shot it down over the jungles of Bougainville: "…and so the great Yamamoto was killed by planes and men from the airfield he had tried so long and so fruitlessly to capture."[68]

[67] Edwin P. Hoyt, *Japan's War: The Great Pacific Conflict, 1853-1952* (New York: McGraw Hill Book Co., 1986), 313.
[68] Miller, *The Cactus Air Force*, 209-210.

Chapter 6

The Lessons of Guadalcanal

Is air power decisive? That central question guided this paper. Like most theoretical questions, the answer is far more complicated than a simple *yes* or *no*. Rather, the answer is likely both, based upon the definitions developed in this thesis.

Definitions

What does it mean to be decisive? A look at relevant theory suggests there are two concepts in play: war-determining and war-ending. Recent debates over decisiveness after wars such as Desert Storm bear testimony to this divergence in thought. Unfortunately, the Air Force and the Army are often on different sides of this debate. As a result, individuals from one service hear members of the other using the term *decisive* and assume it is a marker for a parochial argument designed at gaining larger shares of the budget or greater influence within the Department of Defense. Perhaps this is sometimes the case, but far more often, it is simply a failure to communicate effectively.

For too long, this term has meant very different things to different people. One broad solution to this problem is to scrap the term *decisive* altogether. This course of action suggests the word is so toxic within the joint community, that it carries with it so much theoretical and parochial baggage, that it is beyond recovery. The joint force would certainly benefit from its members learning to discuss their capabilities and effects with more specificity, but theory suggests the concepts of war-determining and war-ending are still useful to our understanding of war.

This brings us to a second option: revival. Beyond the implications for theory, the Guadalcanal Campaign suggests both concepts of war-determining and war-ending are relevant

to the thinking, planning, and execution of war, assuming we can devise a practical method to apply them. This starts with defining both concepts.

A review of classical military theory reveals the term *decisive* most often revolves around the concept of war-determining, or the turning point of the battle, campaign, or war. The *decisive* event is the turning point itself, while the *decisive* force is that which achieved the turning point. This concept leads us to the following definition which stems from the writings of Sir Edward Creasy and O.K. Armstrong:

> Decisive: an event or force that so influences the battle, campaign, or war that victory for one side and defeat for the other logically follows

This term, however, is only useful when discussed in conjunction with its corollary term, *conclusive*, which denotes war-ending:

> Conclusive: an event or force that ends the battle, campaign, or war

When used in contrast, both terms allow us to discuss the concepts of war-determining and war-ending with greater fidelity. Individuals will certainly haggle over the exact definitions of these terms; these definitions are simply a starting point. As such, the joint community should first focus on the precise wording of these two definitions and, second, incorporate them into joint doctrine. Even if different words are chosen, the ideas behind them have utility and will improve our understanding of war, as the Guadalcanal Campaign clearly demonstrates.

Applying the Definitions at the Strategic and Grand Strategic Levels of War

At the grand strategic level, the U.S. had clear industrial superiority heading into World War II. If brought to bear in a long-term conflict, that industrial superiority would almost

guarantee victory. Both sides recognized this. Thus, the unlimited or limited character of the war would likely decide its outcome.

The primary factor in determining the level of American commitment in the Pacific was American will, and Japanese grand strategy attacked this perceived critical vulnerability.[1] If the American population proved unwilling to sacrifice large amounts of men and materiel in the Pacific theater, thereby limiting war between the two major Pacific powers, Japan had a chance to secure a negotiated settlement, preserve some of its gains, and continue its unlimited war on the Asian mainland. The opposite was true for the Allies. President Roosevelt's primary focus, therefore, was to ensure unlimited American will so that American industrial superiority could be applied over the long-term. Before that could happen, the American people needed to believe their fighting men could match the Japanese in combat. Accordingly, Frank noted, "When we acknowledge that American will was not invulnerable, we can see that in this realm of morale effect lies the other decisive contribution of the Guadalcanal campaign…American marines and soldiers could meet the enemy in adversity and prevail."[2]

To return to the proposed definition of *decisive*, the effects of the Guadalcanal Campaign at the grand strategic level of war were so influential at assuring unlimited American will that victory for the Allies, and defeat for the Japanese, logically followed in the broader context of World War II. More specifically, it demonstrated American fighting men could prevail against the Japanese, and President Roosevelt would have the population's support as he committed vast amounts of national resources into the Pacific. Using Douhet's terminology, unlimited American will was the essential condition, and industrial superiority exploited that condition. Thus, the Guadalcanal Campaign was the grand strategic decisive event that secured the essential condition

[1] Richard B. Frank, *Guadalcanal: The Definitive Account of the Landmark Battle* (New York: Penguin Books, 1990), 615-616.
[2] Frank, *Guadalcanal*, 616.

of unlimited American will, thereby enabling the Allies to bring its industrial superiority to bear. The marines, sailors, soldiers, and airmen from both Australia and the U.S. that captured and secured Guadalcanal were the grand strategic decisive force.

The definition of *decisive* applies at the strategic level of war as well. As many historians note, the strategic posture of the Pacific shifted after the campaign. After 1942, the Allies maintained the offensive as they advanced on multiple axes toward Japan, with all operations supplied by the same sea lines of communication the campaign had assured. Even the Japanese acknowledged this. In February 1943, just as the Guadalcanal Campaign concluded, the Imperial General Headquarters announced a state of defense in the Pacific; all components of the Japanese military began a slow retreat back toward the home islands.[3] In other words, effects of the Guadalcanal Campaign on the strategic level of war were so influential in assuring American maritime superiority that victory for the Allies and defeat for the Japanese logically followed in the Pacific theater. Thus, the Guadalcanal Campaign was the strategic decisive event that secured the strategic essential condition of maritime superiority, thereby enabling the unimpeded flow of resources into the Pacific theater. Once again, the Americans and Australians that captured and secured Guadalcanal were the strategic decisive force.

Unfortunately, the Guadalcanal Campaign was not conclusive at the grand strategic or strategic levels of war. Although the war had been decided, tragically, the end would not come for another three years, after millions of additional deaths on both sides, if one includes all of the Japanese and Chinese casualties. Certainly historians will continue to debate whether Japan should have surrendered sooner or whether the Allies should have softened their demand for unconditional surrender, but regardless, the conclusive events to the Pacific war occurred during the summer of 1945.

[3] Richard J. Overy, *The Air War: 1939-1945* (Washington, DC: Potomac Books, Inc., 1980), 93.

With victory in Europe already secured, the differences in conclusive events between the two levels of war tend to blur, but Liddell Hart's discussion is helpful once again. If we focus first at the grand strategic level of war, or the ability of a state to coordinate and direct the resources of a nation toward a political object, then the grand strategic conclusive events were those that impacted the Japanese will to fight. These events included: the dropping of two atomic weapons and the threat of more; the fire-bombing of Japan's major cities, which left upwards of five million Japanese without homes for the winter; the naval blockade, which prevented the Japanese from importing food, coal, oil, and other resources; and the declaration of war by the Soviet Union, which indicated the Soviets would not arbitrate a negotiated settlement between Japan and the U.S. At the strategic level, or the ability of the military to calculate and coordinate the ends and the means, the conclusive events were those that affected the Japanese military's ability to execute Operation Ketsu-Go, the defense of the home islands. Those events included: the naval blockade, which prevented the return of necessary troops from the Asian mainland; the successful invasion of Okinawa, which brought the home islands under the umbrella of Allied land-based tactical air power; and the poor performance of the Japanese troops against the Soviets in Manchuria, which indicated the poorly trained and equipped forces in Japan had no chance of success against the experienced, well-equipped American forces.

As Robert Pape highlighted in his analysis of the why the Japanese surrendered, different components of the Japanese government likely consented to an unconditional surrender for various reasons. In general, military members were influenced to a greater degree by the likelihood of Ketsu-Go's success, or the strategic conclusive factors. As a successful defense of the homelands became increasingly unlikely, their willingness to accept unconditional surrender increased. Conversely, the civilian members of the Japanese Cabinet were more likely

influenced by the increasing vulnerability of the civilian population, or the grand strategic conclusive factors highlighted above. Finally, Pape argued the Emperor was likely influenced by both sets of considerations, military and civilian, strategic and grand strategic.[4]

The focus of this paper is on decisive action, and although it is beyond the scope to go into significant depth on the relative importance of various conclusive factors, a brief glimpse at Japanese decision making reveals two key items. First, as Pape's analysis indicated, it is impossible to point to one conclusive factor even seventy years later. Almost all states, even authoritarian regimes, consist of various factions and leadership groups that all hold sway in the decision making process; each group likely arrives at its decision based on different criteria. In other words, there will often not be one conclusive event, but rather a collection of conclusive events that all contribute to the end of the conflict, some with grand strategic influence, others with strategic influence. About the best anyone can do is to discuss the relative importance of one conclusive event to another, while acknowledging that all events likely played some role in concluding the conflict.

Second, if we separate grand strategic and strategic conclusive events, it is noteworthy the Japanese civilian leaders were more heavily influenced by grand strategic conclusive events whereas the military seemed more heavily influenced by strategic conclusive events. According to Pape, the Emperor, however, was influenced by both. Perhaps the lesson for the future is that officials with less concern for the welfare of their people, as appears to be the case in North Korea, are likely to be more influenced by strategic conclusive events that target the capability to resist. Conversely, officials with greater concern for the welfare of their people, or those that are responsible to them through elections or some other method, are more likely to be influenced by

[4] Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), 120-127.

grand strategic conclusive events that target the will to resist. So-called enlightened despots, such as the Japanese Emperor, will likely be influenced by both strategic and grand strategic conclusive events.

Applying the Definitions at the Operational and Tactical Levels of War

In the broader context of the Pacific war, the Guadalcanal Campaign was the decisive event at both the grand strategic and strategic levels, but in isolation, the Guadalcanal Campaign was a conflict at the operational level of war with decisive and conclusive events of its own. The campaign itself was a classic meeting engagement focused around a geographic decisive point: the relatively flat plains near Lunga Point. Even in June, before the campaign began, Guadalcanal dominated both sides' planning. Tulagi was the capital, the seat of power in the region, and the initial focus of both Japanese and Allied plans; but its importance was quickly surpassed by Guadalcanal because of geography. Guadalcanal was one of preciously few locations in the Solomon Islands amenable to airfield construction; and as a German Fighter Group commander noted during the Allied attack on Sicily, islands "are ideal springboards" for fighters, "you might even say they're unsinkable aircraft carriers."[5] Although this was spoken in a different theater, the concept remained true in the Pacific: whichever side controlled the airstrip on Guadalcanal would have a dominant position in the Southern Solomons.

After the marines secured the airfield in early August, Henderson Field remained the primary objective for the remainder of the Guadalcanal Campaign. As early as August 9, Vandegrift recognized the completion and the subsequent security of the airfield as his mission and the key to long-term survival.[6] This mindset continued throughout the campaign as Nimitz, Halsey, McCain, and Fitch all promised and provided any available resources to the defense of

[5] Quoted in Johannes Steinhoff, *Messerschmitts Over Sicily: Diary of a Luftwaffe Fighter Commander* (Mechanicsburg, PA: Stackpole Books, 2004), 65
[6] Frank, *Guadalcanal*, 125-127.

the field. On the Japanese side, Henderson Field was the central focus of every land battle, beginning with Ichiki's assault in August. Even if Henderson Field was not the objective of the battle, then the Japanese considered its suppression as a necessary precondition for tactical victory, as was the case in the Air-Naval Battle of Guadalcanal.

Inside of the Guadalcanal Campaign, the Air-Naval Battle of Guadalcanal was decisive for one reason: it ensured the continuing operational viability of Henderson Field, the campaign's objective. After November 15, the Japanese no longer had the capacity or the will to make a serious attempt to secure the airfield: no ships larger than a destroyer came within range of the CAF; the JNAF only conducted one additional air raid on the field in late January 1943; and the only major operation the Japanese attempted was one aimed at recovering their remaining soldiers. In other words, the Japanese essentially conceded the Southern Solomons after the losses in mid-November. But one question arises: why did the airfield factor so prominently in the strategies of both sides?

Simply, Henderson Field was the primary objective throughout the campaign because whoever controlled it had a dominant advantage in projecting air power in the Southern Solomons. Even as the campaign escalated in scope and importance, air superiority remained the essential condition at the operational level war as Douhet predicted. Frank noted this as well. In his analysis of the Air-Naval Battle of Guadalcanal, he argued, "Although the two furious night surface actions dominate by bulk the pages on this battle, the course and the outcome of the struggle were more strongly shaped by the hard-won American air superiority over Guadalcanal and its approaches."[7] For three months, the JNAF and the CAF, with heavy augmentation from the carrier air groups and rear-echelon bases, fought a brutal aerial war of attrition over Guadalcanal as Tables 2 and 3 depict.

[7] Frank, *Guadalcanal*, 490.

	11th Air Fleet Losses				Cactus Air Force Losses			
	Zero	Val	Betty	Other	F4F	SBD	TBF	P-400/P-39
Air Combat	72	11	95	13	70	24	2	13
Destroyed on Ground	7	0	0	7	12	20	7	2
Operational	28	4	5	0	33	22	7	4
Total	107	15	100	20	115	66	16	19

Table 2: 11th Air Fleet and Cactus Air Force losses, August 1 to November 15, 1942[8]

	Japanese Carrier Air Groups				American Carrier Air Groups		
	Zero	Val	Kate	Judy	F4F	SBD	TBF
Air Combat	43	58	35	0	31	11	7
Destroyed on Ship	5	0	3	0	32	30	10
Operational	33	11	9	1	18	22	23
Total	81	69	47	1	81	63	40

Table 3: Carrier Air Group losses, August 1 to November 15, 1942[9]

Through the first three months of the campaign, losses were severe on both sides. Total Japanese attrition came to 440 aircraft with about three quarters of the losses due to combat. During the same period, the Americans lost 436 aircraft but only about 40 percent came from combat.[10] But despite the heavy attrition on both sides, as the statistics prove, the effects were relatively one-sided from the outset.

Using the current doctrinal definition of *air superiority* as a benchmark, the Allies had air superiority over Guadalcanal beginning on August 7.[11] Specifically, at no time during the campaign did the JNAF achieve "prohibitive interference" on the strategy or the actions of American land, maritime, or air forces. On the ground, Vandegrift defended the perimeter from assault and committed his men to periodic offensives largely immune to the effects of Japanese

[8] Frank, *Guadalcanal*, 645-646.

[9] Frank, *Guadalcanal*, 645-646.

[10] This statistic includes 36 bombers and PBYs lost over the Solomon Islands during the first three months of the campaign. Frank, *Guadalcanal*, 646.

[11] JP 1-02 defines *air superiority* as "the degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, maritime, and air forces at a given time and place without prohibitive interference by the opposing force." Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 16.

air power. Excluding the two carrier battles, at sea, the JNAF damaged just two surface ships, sunk one destroyer transport, and sunk one transport after a stricken Betty crashed into her. Certainly the USN absorbed heavy losses, but they were largely a result of naval warfare, not attacks from the 11th Air Fleet. As evidenced by the contrast in resupply efforts during the Air-Naval Battle of Guadalcanal, none of the JNAF-inflicted losses affected American naval strategy or the ongoing efforts to resupply Henderson Field. Finally, in the air, the CAF conducted airborne surveillance, close air support, interdiction, and maritime interdiction to great effect regardless of Japanese efforts to prevent it.

At the same time, the JNAF was unable to prevent the American airmen from prohibitively interfering with Japanese strategy and execution in the Solomons. In support of ground operations, the CAF provided daytime close air support to amplify the American firepower advantage; it provided daytime airborne interdiction, destroying approximately one third of the supplies landed on the island; and it forced the Japanese to accept treacherous jungle marches to mask and protect their assaults.[12] At sea, the CAF sank four destroyers, two cruisers, a battleship, turned around Ichiki's Second Echelon in August, devastated Kawaguchi's barges in October, and sank or destroyed 14 transports in October and November. It also provided constant aerial surveillance over the maritime approaches to Guadalcanal, and it forced the Japanese to adopt a night transportation system that proved inadequate to supply a major army. Finally, in the air, the CAF prevented any Japanese bombers from having a significant impact on airfield operations. Through approximately 40 air raids with bombers, the CAF provided direct prohibitive interference on all but two missions. Even on the two missions where the CAF was unable to defend the field, the threat of Wildcats and the danger posed by marine and naval AAA

[12] Frank, *Guadalcanal*, 406.

forced the Bettys to release their bombs from high-altitude, making "bomb accuracy almost impossible."[13]

In short, regardless of what was happening between the two air fleets, the CAF was generating effects on the surface and the JNAF was not, thereby confirming Douhet's and Mitchell's conceptualization of decisiveness. As both men discussed, air superiority is a critical first step, the essential condition; but it is not decisive unless the gaining side can also exploit air superiority to such a degree that victory for one side and defeat for the other logically follows. Although the Allies had air superiority throughout the campaign, the level of exploitation did not rise to the degree of being decisive until the Air-Naval Battle of Guadalcanal.[14]

Prior to mid-November, several factors limited the CAF's ability to exploit air superiority around Guadalcanal, the first being a simple matter of resources. During August and the first weeks in September, the CAF's total strength remained between 30 and 40 aircraft. By the Air-Naval Battle of Guadalcanal, the CAF had over 80 aircraft, with an operational rate of about 85 percent, a credit to the Marine and AAF ground crews.[15] The CAF also benefited from the efforts of over three dozen long range bombers operating out of rear-area bases during the battle, and the augmentation of over 50 aircraft from *Enterprise*.

Second, the CAF benefitted later in the campaign from severe attrition amongst the Japanese aircrew. Although aircraft attrition was almost identical, the Japanese lost somewhere between two to four times as many airmen. For the U.S., 420 airmen died during the entire

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[13] Mark R. Peattie, *Sunburst: The Rise and Fall of Japanese Naval Air Power, 1909-1941* (Annapolis, MD; Naval Institute Press, 2001), 97.

[14] Although Douhet provided many descriptions for command of the air, in Part II he offered his most useful definition as "the ability to fly against the enemy so as to injure him, while he has been deprived of the power to do likewise." Giulio Douhet, *The Command of the Air*, trans. by Dino Ferrari, ed. by Joseph Patrick Harahan and Richard H. Kohn (Tuscaloosa, AL: University of Alabama Press, 2009), 97.

[15] John B. Lundstrom, *The First Team and the Guadalcanal Campaign: Naval Fighter Combat from August to November 1942* (Annapolis, MD: Naval Institute Press, 1994), 467.

Guadalcanal Campaign, whereas Frank approximates 1,200 Japanese aircrew perished.[16] As a result of "irreparable damage," the JNAF was forced to commit poorly trained recruits that lacked the skill and experience of their predecessors.[17]

Finally, the strategy of both sides limited the CAF's ability to exploit air superiority before November. As Clausewitz predicted, a decisive battle would occur only when both sides were willing to risk a majority of their forces.[18] That did not happen until November. Unlike Ghormley, Halsey committed everything he had to the effort: he reduced his rear-echelon garrisons to boost ground strength on Guadalcanal; he committed his three remaining capital ships to battle in November; and he forwarded all available aircraft to Cactus. On the Japanese side, each successive attempt on Henderson Field brought even greater commitments of soldiers, sailors, and airmen to the effort. Furthermore, one of the major lessons from each of the three failed attacks was that the Japanese soldiers suffered from a lack of firepower at the point of impact, thereby requiring the use of slower transports for the November convoy. As the CAF demonstrated, these slower transports proved acutely vulnerable to destruction from the air.

During the Air-Naval Battle of Guadalcanal, all three of these considerations collided to generate a decisive contest to determine the fate of Henderson Field; and although the naval battles receive much of the attention, as Frank noted, the CAF's ability to control and exploit the air shaped the outcome of the campaign. Likewise, Miller argued the Cactus Air Force "exerted a decisive influence on the Guadalcanal Campaign."[19] Hammel came to a similar conclusion: "The inability of the Imperial Navy to overcome the Cactus Air Force by any means—in the air

[16] Aircrew statistics for this paragraph taken from Frank, *Guadalcanal*, 610-614.
[17] Frank, *Guadalcanal*, 614.
[18] Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 260.
[19] Thomas G. Miller, Jr., *The Cactus Air Force*, special illustrated ed. (Reprint, Toronto, Canada: Bantam Books, 1987), xv.

or by bombarding its base—was the ultimate cause of Japan's defeat at Guadalcanal."[20] He also attributed to the CAF a "brilliant, decisive contribution toward defeating Admirals Abe, Kondo, and Tanaka in mid-November."[21]

In short, the Air-Naval Battle of Guadalcanal was the operationally decisive event that secured the essential condition of air superiority in the Southern Solomons, thereby preventing any further attempts on Henderson Field. The effects of the battle so influenced the campaign that victory for the Allies and defeat for the Japanese logically followed. The joint air components that secured and exploited air superiority to such devastating effect were the operationally decisive force. They were not conclusive, however.

After the Air-Naval Battle of Guadalcanal, the Tokyo Express runs continued until mid-December, carrying minimal food and supplies and leading to one more night surface action. On the night of November 30-December 1, eight surprised, supply-laden Japanese destroyer transports demonstrated their mastery of night torpedo tactics to inflict an embarrassing defeat on a superior USN task force. In the forty-minute Battle of Tassafaronga, the IJN sank one American cruiser and damaged three more at the cost of just one ship. But once again, an impressive Japanese tactical victory had little operational impact.

On land, the situation for the Japanese deteriorated rapidly. By the end of November, the CAF possessed almost 200 aircraft; and with the marines and soldiers on the offensive, the CAF continued its surveillance, counter-maritime, interdiction, and close air support missions.[22] With the JNAF no longer conducting daily air raids, the CAF devoted even more resources to these missions. As a result of continued bombardment, American ground offensives, starvation, and

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[20] Eric Hammel, *Guadalcanal, Decision at Sea: The Naval Battle of Guadalcanal, November 13-15, 1942* (New York: Crown Publishers, Inc., 1988), 440.
[21] Hammel, *Guadalcanal: Decision at Sea*, 441.
[22] Robert Sherrod, *History of Marine Corps Aviation in World War II* (Baltimore, MD: The Nautical & Aviation Publishing Co. of America, 1987), 119.

disease, about 50 Japanese soldiers died every day on Guadalcanal and only about five percent of the survivors were combat ready.[23] Conditions were so wretched that the Emperor personally directed the recovery of all possible men, regardless of the difficulty.[24]

On the night of February 7-8, 1943, the final run of Operation Ke became the conclusive event of the campaign. With B-17s reporting the presence of two carriers, four battleships, and almost ten cruisers near Truk, Halsey kept his remaining vessels south of Guadalcanal awaiting the Combined Fleet's arrival. The Combined Fleet's presence, however, was a distraction. The real effort was three massive Tokyo Express runs in the first week of February tasked to evacuate the soldiers remaining on the island. As Nimitz reported,

> Only skill in keeping their plans disguised and bold celerity in carrying them out enabled the Japanese to withdraw the remnants of the Guadalcanal garrison. Not until all organized forces had been evacuated on 8 February did we realize the purpose of their air and naval dispositions. Otherwise, with the strong forces available…we might have converted the withdrawal into a disastrous rout.[25]

As Nimitz and Halsey both recognized, this was a clear missed opportunity for the Americans. Regardless, the conclusive force of the Guadalcanal Campaign, a clear grand strategic, strategic, and operational victory for the Allies, was the Japanese destroyer force that recovered over 10,500 of their countrymen.

At the tactical level of war, the dynamics of each particular battle varied greatly, and it is beyond the scope of this paper to discuss the decisive and conclusive elements of each, but air power certainly shaped the conduct of each. In a repeat of Coral Sea, the two carrier battles were over before any surface ships came within sight of each other. Aside from the final sinking of an abandoned *Hornet* by the Japanese, all of the damage was inflicted by air power. As Frank

[23] Frank, *Guadalcanal*, 527.
[24] Frank, *Guadalcanal*, 561.
[25] Quoted in Sherrod, *History of Marine Corps Aviation*, 127.

noted, "Striking the enemy first provided the formula for success, for neither side possessed the equipment or the doctrine to win on the defensive. It followed that the antagonist that found the opponent first obtained a commanding advantage."[26] In this respect, the character of carrier warfare in 1942 reflected a striking similarity to Douhet's ideas on the employment of air power.

Through the sixth month campaign, air superiority remained the essential condition for daytime battles, as evidenced by the amphibious operations on August 7 and the convoy battle on November 14. On August 7, Fletcher's carrier air groups and the air defenses of Turner's convoy prevented the Japanese from exerting prohibitive interference on Vandegrift's amphibious operations. On November 14, American air superiority enabled SBDs and TBFs from the CAF and *Enterprise* to exact total destruction on Tanaka's 11 transports.

The CAF's ability to control the surface combined with the inability of the JNAF to prevent prohibitive Allied interference drove the majority of the tactical battles to the night. Savo Island, Cape Esperance, both surface actions during the Air-Naval Battle of Guadalcanal, and Tassafaronga all occurred at night because the IJN was reluctant to risk daytime exposure to the CAF. As Mikawa's actions at Savo Island demonstrated, the Japanese commanders always fought with a significant time handicap as well: any ships left within range of American SBDs at dawn would likely suffer the same fate as *Hiei.* Routinely, this prevented the Japanese from exploiting tactical success to achieve operational effects. Conversely, the CAF often assumed defensive responsibilities for any wounded USN ships at dawn, thereby enabling the safe-recovery of any ships that had not been sunk.[27]

At the same time, American air superiority dominated the character of land warfare during the campaign. As was highlighted by each successive Japanese failure, the marines

[26] Frank, *Guadalcanal*, 379.
[27] Frank, *Guadalcanal*, 515.

possessed an overwhelming firepower advantage at the point of attack due to the contrasting abilities of each side to supply their armies. Air superiority also forced the Japanese to accept devastating jungle marches to avoid bombardment and detection. Finally, the Japanese initiated the battles of Tenaru River, Edson's Ridge, and Henderson Field at night as the only way to neutralize the impact of CAF close air support missions. As the previous attacks demonstrated, coordinating a massive attack at night was far more complex than defending a perimeter at night, and night assaults were not the Japanese Army's first choice. Assuming the Japanese could suppress the CAF, the planned assault in December was to occur during the daylight hours.[28]

In summary, the decisive and conclusive events at the tactical level of war varied for each individual battle and operation, but each succumbed to the context of the larger campaign. Air superiority was the essential condition for the campaign in its entirety; as a result, it shaped each of nine major battles and the two amphibious operations that initiated and concluded the campaign. In other words, the Guadalcanal Campaign suggests tactical battles must adhere to the operational level essential condition and the character of the overarching campaign.

The same dynamic repeated itself at the higher levels of war. Just as tactical battles adhered to the operational character and the operational essential condition, so too did the strategic essential condition dominate the Guadalcanal Campaign. Due to the geography of the theater and the need to project force from Japan or the U.S., commanders on both sides conducted the campaign within the constraints imposed by the strategic essential condition of maritime superiority. Finally, theater commanders planned and conducted strategic operations within the grand strategic context of World War II. The need to defeat or assure the grand strategic essential condition of unlimited American will naturally shaped both sides' planning and execution of the Pacific war.

[28] Miller, *The Cactus Air Force*, 178.

Conclusion

For centuries, military practitioners have pursued decisive action, and for good reason. After studying warfare in the two centuries leading up to the Napoleonic Wars, Russell Weigley observed the "quest for decisive battle was the educated soldier's rationalist effort to make war cost-effective, the promptness of the decision through battle promising to prevent an inordinate drain upon the resources of the state."[29] With his magnificent victories at Austerlitz and Jena-Auerstädt, Napoleon became the epitome of decisiveness and inspired the writings of both Clausewitz and Jomini. Decisiveness quickly became the hallmark of a great commander, and the measure by which great battles were judged.

A century later, air power theorists felt compelled to argue the merits of the airplane using that same dialogue. Although he largely avoided the word *decisive* in Part I of *The Command of the Air*, Douhet blatantly emphasized the decisiveness of the aerial field in all of his later works. Across the Atlantic, Mitchell launched an entire crusade around his belief that air power would exert a decisive influence "on the ability of one nation to impress its will on another in armed contest."[30] Unfortunately, Douhet and Mitchell inherited the same ambiguity that plagued previous theorists attempting to describe decisiveness, including Clausewitz and Jomini.

Analysis of all four of their writings indicates two distinct concepts at play, war-determining and war-ending, and these concepts often conflate in theory. As a result, the joint force continues to struggle with this problem. Moving forward, the best solution is to align the term *decisive* with the concept of war-determining and incorporate the term *conclusive* for the concept of war-ending. Certainly there are other words and options available, to include

[29] Russell F. Weigley, *The Age of Battles: The Quest for Decisive Warfare from Breitenfeld to Waterloo* (Bloomington, IN: Indiana University Press, 1991), 536.
[30] Mitchell, *Winged Defense*, 214.

eliminating the term *decisive* from our lexicon altogether; but the Guadalcanal Campaign suggests the concept of decisiveness is worth reviving.

At both the grand strategic and strategic levels of war, Guadalcanal was the turning point of the Pacific—it was decisive. After November 15, 1942, the question of victory in the Pacific was no longer in doubt; only the questions of *how*, *when*, and *at what cost* remained. Clearly, these are not trivial questions. As Iklé highlighted, far too often strategists and planners overlook the critical question of how to conclude a war; therefore, the concept of war-ending, or conclusiveness, must be discussed as well.[31] But equally problematic is the idea that the war remains undecided until the concluding acts.

The case study of the Guadalcanal Campaign suggests the idea of war-determining is predictable inside of a battle, campaign, or even a war; this predictability hinges upon Douhet's concept of the essential condition. In Guadalcanal, unlimited American will was the grand strategic essential condition; once assured, the Allies exploited the essential condition through overwhelming industrial superiority. At the strategic level of war, maritime superiority in the central and south Pacific was the essential condition due to the requirement to project power across the Pacific; the Allies exploited the essential condition with a massive shipping effort which brought their resources to bear. At the operational level of war, air superiority over the Southern Solomons was the essential condition; the Allies exploited the essential condition by using air power to control the surface, thereby preventing any further attempts on Henderson Field. Finally, at the tactical level of war, the essential condition varied by conflict, but it is enough to highlight that each battle had to align with the larger context of the essential conditions of the higher levels of war.

[31] Fred Charles Iklé, *Every War Must End*, 2nd ed. (New York: Columbia University Press, 2005), 2-3.

Douhet and Mitchell were both right and wrong about the decisiveness of the aerial field. Air superiority is not the universal essential condition they predicted; rather the Guadalcanal Campaign suggests the essential condition, if we are to take that concept forward, varies by conflict and level of war. Perhaps a more useful way of applying Douhet's methodology is to acknowledge there are many critical conditions that exert influence on the decision and the conclusion of any conflict. These might include the support of the population, industrial superiority, maritime superiority, air superiority, space superiority, cyber superiority, information superiority, or even the preservation of an alliance; but one of those conditions will be so influential to the outcome of the battle, campaign, or war that it becomes the essential condition.

At any level of war, decisive action rests on recognizing, securing, and then exploiting the essential condition to such a degree that victory for one side and defeat for the other logically follows. The challenge for strategists and commanders is to assess the character of the war and focus on securing and exploiting the true essential condition. Inside the Guadalcanal Campaign, this was a major struggle. The Japanese initially believed maritime superiority would dictate the character of the campaign, but that was not the case. Maritime superiority was certainly a critical condition that influenced the campaign, and it remained the essential condition at the strategic level of war, but air superiority proved to be the essential condition that decided the outcome at the operational level of war, once the Americans proved able to exploit it. Much to their frustration, Japanese admirals such as Yamamoto, Mikawa, and Tanaka eventually "gave up in face of the ascendancy of U.S. air power at Guadalcanal."[32]

Despite Brodie's critiques, the preeminence of air power at the operational level validates Douhet's and Mitchell's theories in no small measure. They may have oversold the conclusive aspects of air power, and perhaps they over-extended the decisive aspects of air power at the

[32] Hammel, *Guadalcanal: Decision at Sea*, 442.

strategic and grand strategic levels; but if we focus on the operational and tactical levels of war, the Guadalcanal Campaign suggests air power can be decisive. And although it represents a data point of one, this case study is a critical data point because of the importance of the Guadalcanal Campaign in deciding the war. In short, air power tipped the scales in the campaign that decided the Pacific war. This is certainly no small feat, and the credit belongs to the joint and coalition force in its entirety, not any one service.

The control and exploitation of air superiority over Guadalcanal resulted from the combat effectiveness of all three services. Marine Corps and Navy Wildcat pilots, supported by the devastatingly effective Navy AAA gunners, were the primary combatants in the battle for air superiority. Marine Corps and Navy SBDs aircrews exploited air superiority to exercise control over the surface within about 200 miles of Guadalcanal, while AAF Airacobras excelled at close air support and interdiction. Although largely incapable of hitting moving ships at sea, AAF bombers provided critical surveillance to Cactus and routinely attacked the air bases at Rabaul, leading to additional Japanese aircraft attrition.[33]

Beyond the combat elements, the experience of Guadalcanal also suggests air superiority is impossible to achieve or exploit without the support of the entire combined force. Of particular importance were the cryptographic intelligence analysts at Pearl Harbor and the Australian coast watchers, of whom Vandegrift said he could say "nothing too lavish in praise."[34] Due to their efforts, Nimitz, Ghormley, Halsey, and Vandegrift maintained considerable awareness of Japanese intentions and were often able to devise and execute the appropriate counter-strategies. The ground crews, the SeaBees, the marines, and the soldiers, some of them Guardsmen, deserve considerable praise as well. Through three major ground assaults and near

[33] Frank noted that the B-17s scored hits with less than 1 percent of their bombs. Frank, *Guadalcanal*, 613.
[34] A.A. Vandegrift and Robert B. Asprey, *Once a Marine* (New York: W.W. Norton and Company, Inc., 1964), 137.

constant bombardment, they defended the field, kept the runways open, and kept the CAF airborne. Lastly, the single greatest threat to the CAF was often not the Japanese air raids, but logistical shortfalls. Henderson Field sat at the far end of the Pacific supply chain; Navy, Marine Corps, and AAF transports routinely fought through air raids, submarine attacks, and Japanese surface task forces to keep Cactus supplied, not only with fuel, spare parts, food, and medical supplies, but with the actual instruments of air combat: aircraft and aircrew.

Ultimately, the air war hinged on the ability of both sides to provide competent reinforcements and employ them effectively. The Japanese entered the campaign with a seemingly invulnerable fighter and superbly trained front-line aircrew, but the JNAF lacked the resources to offset the impacts of heavy attrition. The Japanese further whittled away their own strength by "negligently or recklessly accepting battle under serious handicaps," paramount among those was trying to project air superiority from bases located 565 miles away.[35] Lastly, IJN officers frequently exhibited attitudes that often bordered on contempt for their Japanese Army brethren. The feeling was likely mutual, and the result was appalling coordination between the two services in a theater that demanded total integration. In short, Guadalcanal "proved that the Japanese had no idea how to wage war in the air."[36]

In stark contrast, the marines, soldiers, sailors, and airmen at Guadalcanal exhibited a level of joint cooperation greater than any American force seen to date, and likely any since. In their analysis, James Winnefeld and Dana Johnson identified the Guadalcanal Campaign as the "high-water mark of jointness and unity of effort in air operations until Desert Storm"; but the joint cooperation in the CAF likely exceeded even the operations against Iraq.[37] During the Air-

[35] Frank, *Guadalcanal*, 612.
[36] Eric M. Bergerud, *Fire in the Sky: The Air War in the South Pacific* (Boulder, CO: Westview Press, 2000), 74.
[37] James A. Winnefeld and Dana J. Johnson, *Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991* (Annapolis, MD: Naval Institute Press, 1993), 33.

Naval Battle of Guadalcanal, sections and divisions routinely departed with airmen of all three services. Additionally, the AAF deployed eight of its newest fighters to Cactus without concern for who had Operational Control (OPCON) or Tactical Control (TACON), as did Kinkaid, who deployed over 50 of his available fighters from *Enterprise*. Furthermore, airmen from all services demonstrated a consistent willingness to subordinate service doctrine and mission biases to the needs of the CAF. Perhaps unlike today's joint force, the desire to survive and win left "no time or incentive for role and mission controversies to appear" and led to the development of a truly joint air organization under the operational command of a Marine Corps general.[38]

Perhaps the most important lesson from the Guadalcanal Campaign then is one of joint integration. In the end, air power was decisive at the operational level of war; but it was not Army Air Forces air power, Marine Corps air power, or U.S. Navy air power that decided the campaign. It was the joint force, with key contributions from American allies, that successfully controlled and exploited the operational essential condition of air superiority. The result was such that after the Air-Naval Battle of Guadalcanal, victory for the Allies and defeat for the Japanese logically followed. In the end, American air power was *decisive* at the operational level of war during the Guadalcanal Campaign; and in similar contexts, it could be so again.

[38] Winnefeld and Johnson, *Joint Air Operations*, 32-34.

Appendix 1

Acronyms

AAA	Antiaircraft Artillery
AAF	Army Air Forces
CAF	Cactus Air Force
COMSOPAC	Commander South Pacific
IJN	Imperial Japanese Navy
JNAF	Japanese Naval Air Force
U.S.	United States
USN	United States Navy

Appendix 2

Air Raid Statistics by Date

This appendix provides air raid data for Japanese raids against Henderson Field. It only includes losses of aircraft and aircrew specifically associated with air combat over and around Guadalcanal on designated air raids, fighter sweeps, and multi-ship reconnaissance missions. It does not include operational losses outside of these missions, naval battles, or smaller single-ship reconnaissance or artillery-spotting missions. Although those statistics are valuable and certainly contribute to a larger story of air power during the campaign, Richard Frank offered such an overview in Appendix 4 of his work, *Guadalcanal: The Definitive Account of the Landmark Battle.* Frank's table divided all losses for the campaign into three categories: "Air Combat," "Destroyed on Ground," and "Operational" broken out by aircraft type. He did not go into a daily account.

The intent of these tables is to offer a day-by-day account as the Japanese attempted to wrest air superiority away from the Allies, by depicting the types of air raids they launched, the attrition they absorbed, and the effects they achieved. Frank's book was of central importance to this endeavor, because one can almost accomplish a full day-by-day account of the aerial battles that occurred in the skies over and around Guadalcanal from his work alone. Furthermore, Frank concerned himself with actual confirmed losses by either side versus claims which are often optimistic or inflated. John Lundstrom's *The First Team and the Guadalcanal Campaign*, Thomas Miller, Jr's *The Cactus Air Force*, and Robert Sherrod's *History of Marine Corps Aviation in World War II* were used to verify information in Frank's account and to fill in gaps in the data.

The most problematic category to determine was often "Damage to Henderson." In this category, I often made inferences or assumptions when the damage from a raid was not clearly addressed. If no damage was reported from any of these four sources, I describe the damage as "None Reported," and took that to mean that no damage occurred from the raid or that it was so insignificant that none of these four authors was compelled to highlight it. Certainly, the Marine and Naval engineers were constantly repairing airfield infrastructure, and ground crews were constantly repairing damage to aircraft, but if Frank, Lundstrom, Miller or Sherrod failed to mention it, then the damage was considered irrelevant to the overall contest for air superiority.

"Weather Cancel" can signify one of two things. First it can indicate the Japanese cancelled the mission before takeoff and no aircraft got airborne on that particular day. It could also signify that aircraft took off but had to abort for weather short of Guadalcanal. In either case, no air raid occurred.

Finally, the statistics for aircrew attrition are the least definitive of all of the columns. Based on the documented abysmal performance of Japanese search and rescue efforts, I considered the aircraft's full complement of aircrew lost unless one of the four authors spoke to a successful recovery. Certainly some of these aircrew were recovered and eventually made it back to Rabaul, but this is balanced by the counter assumption that all aircrew of a damaged aircraft that made it home survived. Especially on the seven-man Bettys, even if a damaged aircraft made it home, some of the crew were often killed in action. Therefore, it is my assumption that these two errors balance each other out and that the statistic is still meaningful in describing the heavy attrition in aircrew the IJN was absorbing.

Table A: Air Raid Statistics for Chapter 4, Section 1 (Missed Opportunities, August 7-10), and Section 2 (The Founding of the Cactus Air Force, Aug 10-25)

Date	IJN Strike Package	IJN Aircraft Losses	Aircraft Attrition	Aircrew Attrition	CAF Response	CAF Combat Losses	Damage to Henderson
Aug 7, 1st Raid	27 Bettys, 18 Zeros, 207 aircrew	5 Bettys, 2 Zeros, 34 aircrew	16%	16%	18 Wildcats (carrier based)	9 Wildcats, 1 SBD, 6 aircrew (carrier based)	Attacked shipping, no damage
Aug 7, 2nd Raid	9 Vals, 18 aircrew	9 Vals, 15 aircrew	100%	83%	16 Wildcats (carrier based)	None	Light damage to a destroyer
Aug 8	26 Bettys, 15 Zeros, 197 aircrew	15 Bettys, 1 Zero, 136 aircrew	39%	69%	3 Wildcats (carrier based)	None	Attacked shipping, 1 transport sunk
Aug 9	None planned						
Aug 10	Light recon only						
Aug 11	6 Zeros, 6 aircrew	None	0%	0%	None	N/A	Strafed field, light damage
Aug 12	3 Bettys, 21 aircrew	None	0%	0%	None	N/A	Missed field, no damage
Aug 13	None planned						
Aug 14	Light recon only						
Aug 15	None reported						
Aug 16	None reported						
Aug 17	None reported						
Aug 18	None reported						
Aug 19	None reported						
Aug 20	None reported						
Aug 21	26 Bettys, 13 Zeros, 195 aircrew	None reported	0%	0%	4 Wildcats	2 Wildcats damaged	Attack on carriers, Zeros flex to Guadalcanal
Aug 22	None reported						
Aug 23	None reported						
Aug 24	6 Kates, 15 Zeros,	4 Kates, 3 Zeros,	33%	45%	8 Wildcats	3 Wildcats, 2 pilots	Light damage
Aug 25	21 Bettys, 12 Zeros, 159 aircrew	None reported	0%	0%	CAF Refueling	None	Minor damage

Table B: Air raid statistics for Chapter 4, Section 3 (Operation Ka, Aug 26 to Sep 14)

Date	IJN Strike Package	IJN Aircraft Losses	Aircraft Attrition	Aircrew Attrition	CAF Response	CAF Combat Losses	Damage to Henderson
Aug 26	17 Bettys, 9 Zeros, 128 aircrew	4 Bettys, 3 Zeros (9 Bettys 1 Zero damaged)	27%	13%	12 Wildcats	1 Wildcat, 1 Pilot	2,000 lbs of gasoline destroyed
Aug 27	Weather cancel						
Aug 28	Weather cancel						
Aug 29	18 Bettys, 22 Buka Zeros, 148 aircrew	1 Betty, 1 Zero	5%	5%	10 Wildcats	None	3 fighters destroyed on ground
Aug 30	18 Buka Zeros, 18 aircrew	9 Zeros	50%	50%	8 Wildcats, 8 P-400s	4 P-400s, 2 AAF pilots	NA - fighter sweep only
Aug 30, 2nd raid	18 Bettys, 13 Zeros, 139 aircrew	None	0%	0%	CAF refueling	None	Transport *Colhoun*, 50 sailors KIA
Aug 31	Weather cancel						
Sep 1	Weather cancel						
Sep 2	18 Bettys, 20 Zeros (13 from Buka), 146 aircrew	2 Zeros, multiple Bettys damaged	5%	1%	Not specified	None	Light damage, started fires
Sep 3	Weather cancel						
Sep 4	Weather cancel						
Sep 5	27 Bettys, 15 Zeros, 204 aircrew	1 Betty, 6 Bettys damaged	2%	3%	18 Wildcats	4 Wildcats damaged	Weather, no damage
Sep 6	Weather cancel						
Sep 7	Weather cancel						
Sep 8	Weather cancel						
Sep 9	27 Bettys, 14 Zeros, 203 aircrew	3 Bettys, 6 Bettys damaged	7%	10%	15 Wildcats	5 Wildcats, 2 pilots	Attacked shipping, no losses
Sep 10	25 Bettys, 15 Zeros, 190 aircrew	3 Bettys	8%	11%	11 Wildcats	1 Wildcat, 1 pilot	Light damage
Sep 11	27 Bettys, 15 Zeros, 204 aircrew	1 Betty, 1 Zero, 5 Bettys damaged	5%	4%	12 Wildcats	None	1 P-400,1 Wildcat, 28 casualties
Sep 12	25 Bettys, 15 Zeros, 190 aircrew	5 Bettys, 1 Zero	15%	19%	32 Wildcats	1 Wildcat, 1 pilot	Main radio station, 3 SBDs, gas
Sep 13	Recon: 2 Irvings, 9 Zeros, 13 aircrew	4 Zeros	36%	31%	28 Wildcats	2 Wildcats, 2 pilots	Recon for Kawaguchi, no bombers
Sep 13 2nd raid	26 Bettys, 12 Zeros, 194 aircrew	2 Bettys, 1 Zero	8%	8%	16 Wildcats	4 Wildcats	Bombed, strafed own troops at Taivu Pt (Japanese)
Sep 14	1 Irving, 3 Float Zeros, 7 Zeros, 12 aircrew	3 Float Zeros, 1 Zero	36%	33%	Not specified	None	Multiple recon waves
Sep 14 2nd raid	2 Float Zeros, 17 Petes (biplane float bombers), 36 aircrew	1 Float Zero, 4 Petes	26%	19%	10 Wildcats	None	None

Table C: Air Raid Statistics for Chapter 4, Section 4 (Operation Ka Part 2, Sep 15 to Oct 26)

Date	IJN Strike Package	IJN Aircraft Losses	Aircraft Attrition	Aircrew Attrition	CAF Response	CAF Combat Losses	Damage to Henderson
Sep 16	Weather cancel						
Sep 17	None planned						
Sep 18	Weather cancel						
Sep 19	Weather cancel						
Sep 20	None scheduled						
Sep 21	Attacked Port Moresby						
Sep 22	Weather cancel						
Sep 23	Weather cancel						
Sep 24	Weather cancel						
Sep 25	Weather cancel						
Sep 26	Weather cancel						
Sep 27	17 Bettys, 38 Zeros, 157 aircrew	3 Bettys, 1 Zero, 11 Bettys damaged	7%	14%	35 Wildcats	None	Radio eqpt, 3 aircraft destroyed, 7 damaged
Sep 28	27 Bettys, 42 Zeros, 231 aircrew	7 Bettys, almost all Bettys damaged, 4 Zeros damaged	10%	21%	34 Wildcats	1 SBD, 4 Wildcats damaged	Light damage
Sep 29	9 Bettys (decoy), 27 Zeros, 90 aircrew	2 Zeros	6%	2%	33 Wildcats	1 Wildcat, 1 pilot	Bettys aborted at 60 miles, no damage to field
Sep 30	Weather cancel						
Oct 1	None scheduled						
Oct 2	9 Bettys (decoy), 36 Zeros,	1 Zero, 4 Zeros damaged	2%	1%	36 Wildcats, Late warning	6 Wildcats, 4 pilots, 2 SBDs disappeared	9 Bettys, 9 Zeros abort, no damage to field
Oct 3	15 Bettys (decoy), 27 Zeros, 132 aircrew	10 Zeros, 3 Zeros damaged	24%	7%	29 Wildcats	1 Wildcat	15 Bettys abort, no damage to field
Oct 4	None scheduled						
Oct 5	None scheduled						
Oct 6	None reported						
Oct 7	None reported						
Oct 8	Weather cancel						
Oct 9	27 Zeros, 27 aircrew	None	0%	0%	8 P-39s, 27 Wildcats	1 Wildcat, 1 pilot (operational loss)	Weather prevented intercept, Fighter sweep only, no damage
Oct 10	None reported						
Oct 11	First Wave: 17 Zeros Second Wave: 45 Bettys, 30 Zeros 362 aircrew	1 Betty, 3 Bettys damaged	1%	2%	12 P-39s, 39 Wildcats	1 Wildcat, 1 P-39, 1 pilot	Weather obscured Henderson, no damage
Oct 12	Weather cancel						
Oct 13, 1st raid	27 Bettys, 18 Zeros, 207 aircrew	1 Betty, 1 Zero	4%	4%	55 aircraft, late warning	1 Wildcat	Bypassed convoy, damaged main rwy, 12 aircraft, and destroyed 5k gallons of gas

Oct 13, 2nd raid	18 Bettys, 18 Zeros, 144 aircrew	None	0%	0%	12 Wildcats	1 Wildcat damaged	More light damage to the field
Oct 14, 1st raid	26 Bettys, 18 Zeros, 200 aircrew	None	0%	0%	Unopposed	NA	None
Oct 14, 2nd raid	12 Bettys, 15 Zeros, 99 aircrew	4 Bettys, 4 Bettys damaged	15%	28%	9 Wildcats, plus P-39s	1 Wildcat, 1 P-39, 2 pilots	Minor bomb damage
Oct 15	112 total sorties, incl. 23 Bettys from Rabaul, approx 275 total aircrew	5 Zeros, 1 Pete, 1 Betty	6%	5%		7 combat losses, 8 pilots	Some damage to runway and aircraft by Rabaul Bettys
Oct 16	Multiple wave against *Hornet*, unable to locate						Damaged *McFarland* (seaplane tender)
Oct 17, 1st raid	18 Kates, 18 Zeros, 72 aircrew (from Buka)	7 Kates, 1 Zero	22%	21%	8 Wildcats	1 Wildcat, 1 pilot	Shipping raid, ineffective
Oct 17, 2nd raid	Bettys and Zeros, unknown numbers	1 Betty, 2 Zeros	??%	??%	??, late warning	1 Wildcat	Light damage to airfield
Oct 18	14 Bettys, 7 Zeros, 105 aircrew	4 Bettys, 1 Zero	24%	21%	15 Wildcats	2 Wildcats	Killed 7, wounded 8, light damage
Oct 19	9 Zeros, 9 aircrew	None	0%	0%	16 Wildcats	1 Wildcat	Fighter sweep only, no damage
Oct 20, 1st raid	15 Zeros, 15 aircrew	1 Zero	7%	7%	Unknown Wildcats	1 Wildcat, 1 pilot	Fighter sweep only, no damage
Oct 20, 2nd raid	9 Bettys, 25 Zeros, 88 aircrew	None	0%	0%	Unknown Wildcats	1 Wildcat	Light damage
Oct 21	9 Bettys, 25 Zeros, 88 aircrew	1 Zero	3%	1%	15 Wildcats	1 Wildcat	Minimal damage
Oct 22	12 Vals, 12 Zeros, 36 aircrew	2 Vals	8%	11%	29 Wildcats	None	Attacked shipping, no damage
Oct 23	16 Bettys, 29 Zeros, 141 aircrew	1 Betty, 6 Zeros	16%	9%	24 Wildcats, 4 P-39s	None	Minimal damage
Oct 24	Weather cancel						
Oct 25, 4 waves	27 Zeros, 27 aircrew	2 Zeros	7%	7%	Sporadic resistance	None	Morning fighter sweeps only
Oct 25, raid	16 Bettys, 12 Zeros, 124 aircrew from Rabaul	2 Bettys, 8 Zeros	36%	18%	Heavy Wildcat resistance	2 Wildcats	Minimal damage
Oct 25, raid	12 Vals, 12 Zeros, 36 aircrew, from carriers	None	0%	0%	Minimal resistance	None	No Damage
Oct 26	None Scheduled						

Table D: Air Raid Statistics for Chapter 5 (The Decisive Stage: The Air-Naval Battle of Guadalcanal, October 27 to November 15, 1942)

Date	IJN Strike Package	IJN Aircraft Losses	Aircraft Attrition	Aircrew Attrition	CAF Response	CAF Combat Losses	Damage to Henderson
Oct 27	None scheduled						
Oct 28	None scheduled						
Oct 29	None scheduled						
Oct 30	None scheduled						
Oct 31	None scheduled						
Nov1	None scheduled						
Nov 2	None scheduled						
Nov 3	None scheduled						
Nov 4	None scheduled						
Nov 5	"Minor raid"						None reported
Nov 6	Weather cancel						
Nov 7	Weather cancel						
Nov 8	Weather cancel						
Nov 9	Weather cancel						
Nov 10	18 Zeros, 18 aircrew	1 Zero	6%	6%	31 Wildcats	None	Fighter sweep, no damage
Nov 11, 1st raid	9 Vals, 18 Zeros from Buin, 36 aircrew	5 Vals, 2 Zeros	26%	33%	21 Wildcats	6 Wildcats, 4 pilots	Attacked transports, damaged 1
Nov 11, 2nd raid	25 Bettys, 26 Zeros, 201 aircrew	4 Bettys	8%	14%	17 Wildcats	3 Wildcats, 2 pilots	Minimal damage
Nov 12	16 Bettys, 30 Zeros, 142 aircrew	11 Bettys, 1 Zero	26%	55%	20 Wildcats, 8 P-39s	3 Wildcats, 1 P-39, 1 pilot	Attacked Turner's transports off Lunga Pt, light dmg to a cruiser
Nov 13	35 Zeros, 35 aircrew	3 Zeros (8 additional operational losses)	31%	31%	Numerous Wildcat missions throughout day	1 Wildcat	Defensive patrols over *Hiei*
Nov 14	36 Zeros (Rabaul), 9 Zeros (Buin), 45 aircrew	13 Zeros	29%	29%	Numerous Wildcat missions throughout the day	2 Wildcats, 5 SBDs (all from *Enterprise)*	Defensive patrols over Tanaka's convoy
Nov 15	13 Zeros, 7 Vals, 27 aircrew	1 Zero, 1 Val damaged	5%	4%	15 Wildcats	None	Naval strike, no attacks conducted

Appendix 2

Major Battles and Operations of the Guadalcanal Campaign

Battle	Date	Day / Night	Air Superiority	Winner	Operational Level Impact
Operation Watchtower	Aug 7-10	Day	U.S.	U.S.	1st Marine Division secured Henderson Field
Battle of Savo Island	Aug 8/9	Night	NA	Japan	Little; Mikawa failed to target convoy
Battle of Tenaru River	Aug 20/21	Night	NA	U.S.	Marines held perimeter
Battle of the Eastern Solomons	Aug 24	Day	Contested	U.S.	U.S. Navy inflicted greater damage and Combined Fleet failed to destroy American carriers or ensure safe passage of convoy
Battle of Edson's Ridge	Sep 12-14	Night	NA	U.S.	Marines held perimeter
Battle of Cape Esperance	Oct 11/12	Night	NA	U.S.	American moral victory, defeated IJN at night
Battle for Henderson Field	Oct 23-25	Night	NA	U.S.	Marines held perimeter
Battle of the Santa Cruz Islands	Oct 26	Day	Contested	Japan	A Pyrrhic victory: Japanese sunk *Hornet* but gained little operational or strategic advantage and suffered heavier aircraft/aircrew attrition
Air-Naval Battle of Guadalcanal	Nov 12-15	Day/Night	U.S.	U.S.	Decisive American victory; the joint force sunk or destroyed 11 IJN transports and 2 IJN battleships; no further threat to Henderson Field
Battle of Tassafaronga	Nov 30-Dec 1	Night	NA	Japan	Little; humiliating defeat for U.S. Navy but no operational impact
Operation Ke	Feb 1-Feb 8	Night	NA	Japan	Conclusive Japanese "victory"; evacuated 10.5k Japanese soldiers from Guadalcanal

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